THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

JULY, 1899.

A CASE OF MALARIAL FEVER.*

BY HENRY TAYLOR.

MR. PRESIDENT AND GENTLEMEN,—Probably your first exclamation on learning the title of my communication, which I have the honour of bringing before you this evening, would be "What's that? I never heard of it before in connection with our patients." To this I may reply in the words of Shakespeare,—

> There are more things in heaven and earth
> Than dreamt of in our philosophy.

Malarial fever is an intermittent fever affecting horses, which, in its location and in many symptoms, is somewhat analogous to surra. It is characterised by anæmia with its attendant sequalæ, and is very often fatal. I cannot find it described in any veterinary text-books, but the disease, as far as symptoms go, is well known in Western Canada. The etiology is not yet determined.

History of Case.—Bay carriage horse, eight years old, bred in Manitoba, the property of my father on our farm near Winnipeg.

Just before my arrival there, end of August, 1897, the animal was thought to have had a slight attack of malarial fever, and had consequently been laid off work, but when I saw him he appeared to have recovered and fit to resume work again. Accordingly he was, a day or two after, driven. On arriving back, his driver remarked that he did not go with his usual vigour—in fact, after the first mile, both going and coming, he could hardly get him along, and when taking him into the stable he staggered.

*Read before a meeting of the Edinburgh Veterinary Medical Society, April 28th, 1899.

Upon seeing him out shortly after, he presented the peculiar staggering gait so marked in the disease, but, in addition, some signs of laminitis.

The respirations were not much quickened, but the pulse was soft, and numbering 65 per minute, temp. 106·1. Next morning, temp. 106, pulse 60. Night temp. 105·2, pulse 54; next day, temp. 103, pulse 45. Three days after the temp. and pulse were normal.

Some little time after he was again driven a short distance, and this time I noticed more particularly the total inaptitude for work and the peculiar staggering gait, swaying of hind quarters from side to side, both exceedingly well marked in turning and when he threw up his head whilst trotting. Sometimes there was knuckling over of one of the hind fetlocks. (N.B.—The alteration in motion is very often the first observable symptom of malarial fever.) His temp. on arrival was nearly 107.

Up to now, and even all through the illness, the appetite showed very little impairment (though as a rule it is much diminished).

Other symptoms were very shortly manifested. He quickly began to lose condition, and the abdomen became tucked up. The temperatures varied considerably, and the pulse was of a soft, asthenic type. One very diagnostic symptom is the discrepancy existing between the height of the elevation of temperature and the increase in the number of pulse-beats—thus sometimes you might get a temperature of 107 with a pulse of 50. Fæces were occasionally covered with mucous. Urine was scanty and high-coloured during febrile states. There was no cough. The respirations were increased in number, more especially when the temperature was elevated, but not to any great extent. The mucous membranes became paler than normal, and of a yellowish tinge, though this became more evident as the disease advanced. At this stage no petechiæ were seen on the visible mucous membranes, nor were there any œdematous swellings about the neck—two symptoms seen in surra.

Treatment consisted of small doses of pot. nit. and pot. chlor., with 3 ss. of quinine sulphas (rendered soluble by a few drops of $H_2 SO_4$), twice daily for a week at a time. Later on, liq. arsenicalis was tried, then iron tonics—all with no *permanent* benefit.

Towards the end of October he looked almost like making a recovery, for he appeared full of life when turned out into a small paddock; but relapsing periods continued to set in.

December: Much the same. Eating well, but getting thinner.

January, 1898: Still alive, but getting weaker; began to drag his hind limbs, as if partially paralysed. The following is a reading from his temperature chart for some dates during this month:—

January	7th	..	..	..	101·1
„	8th	..	..	..	107·4
„	17th	..	..	..	100·8
„	18th	..	..	..	107·8
„	19th	..	..	..	107·2
„	20th	..	..	..	103·4
„	21st	..	..	..	101

The appetite still being good, to satisfy curiosity he was kept on, but the increasing paralysis left little hope of his recovery. In spring-time he was turned out to grass, being then semi-paralysed in the hind limbs, and, as this kept on gradually increasing, it was found necessary to destroy him. This was done by shooting in the head on June 13th, 1898, about ten months after he had first shown symptoms of the disease.

Being then in England, I am indebted to Dr. Torrance, D.V.S., Winnipeg, for the following particulars of the *post-mortem* made at my father's request upon the animal. Dr. Bell, Government Bacteriologist, was also present. Dr. Torrance also sent me sections he cut of the various organs.

Post-mortem Lesions.

Body thin, but no swellings visible on it or legs.

Blood darker and more fluid than normal, and what collected in the thorax during the *post-mortem* quickly deposited its corpuscles without clotting, and left a quantity of yellow, muddy-looking serum on the surface. (N.B.—It had previously been found sterile, but the red blood corpuscles enormously decreased in number.)

Muscles.—On removing the skin, numerous petechiæ and hæmorrhagic spots were visible in the fasciæ of the dorsal and lumbar muscles.

Lungs collapsed. Nothing abnormal to naked eye.

Heart.—Both cavities thickly spotted with black, hæmorrhagic places, some as large as a threepenny piece, the substance flabby but not fatty.

Large Vessels normal.

No effusion in pericardial or pleural cavities.

Abdomen.—Surfaces of intestines pale, and studded with petechiæ in places.

Lymphatic Glands in the mesenteries, were black as if filled with dark blood.

Stomach shrunken and almost empty. Mucous membrane pale. One larva of horse bot fly adherent.

Large Intestines.—Nothing abnormal noticed as regards their contents except the presence in small numbers of Sclerastoma Tetracanthus.

Liver apparently normal.

Spleen considerably enlarged.

Kidneys on section showed nephritis, and the pyramids seemed to terminate in a zone of peculiar jelly-like material of a pale yellow colour.

Spinal Cord of lumbar region, excised for 15 inches, showed slight evidence of congestion.

Other organs normal. Brain not examined.

Microscopic Appearances.

The slides were prepared from small pieces of the following organs sent over here :—

Kidney showed a small amount of interstitial nephritis, indicated by a round celled infiltration between the tubules and around Bowman's Capsule. Some tubules dilated; a few Bowman's Capsules replaced by fibrous tissue. In the medulla the arteria rectæ were engorged, pushing the tubules apart.

Muscles showed hæmorrhages both into the perimysium and between the fibres themselves.

Striae rather faint.

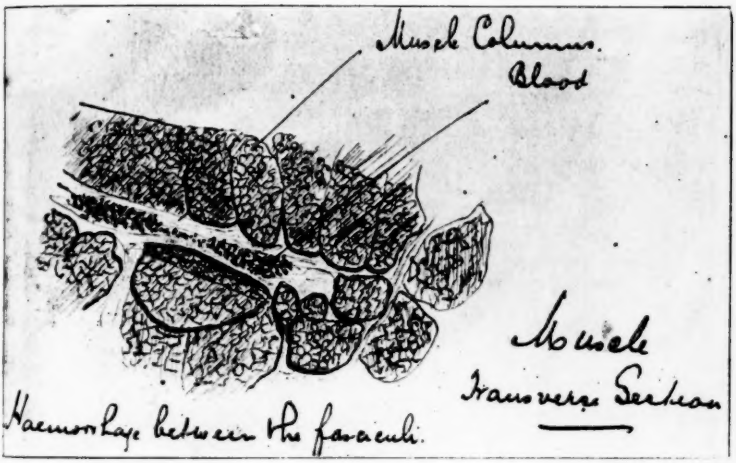
Lungs were very much congested, but this is only what we should expect from the mode of death; in addition to this congestion, however, there were hæmorrhages into the alveoli in some places, and one large bronchus had in its lumen a quantity of blood. Emphysema was also seen, but no pneumonic lesions. The most striking feature about the lungs, however, was the presence of numerous black bodies scattered all over the sections.

The sections were examined unstained, stained with piero carmine, and also with methylene blue plus eosene as a counterstain (the latter being one of the stains for malaria in man).

These black pigment bodies were not found in the lymphatics, but scattered irregularly all over the sections; this

would not be the case if it were an extraneous pigment, and if it were melanin it would be a sepia colour under the microscope. They were of different sizes, some much larger than a red blood corp, others smaller; in some places groups of them were seen, but nearly all had individually a more or less spherical shape. Those alveoli which were filled with blood, and also one large bronchus similarly affected, contained numerous ones, and from this we may conclude that they circulate in that fluid.

Some of the pigment bodies *appeared* to be in the epitheleal cells of the alveoli, but this may be in appearance only.



They did not *seem* to have any protoplasm, but looked somewhat like the iron containing granules left after the destruction of the hæmaglobin of the red blood corpuscles.

The *red blood* corpuscles were of the usual size, not crenated, but appeared much rounder than what we generally see in a section. Possibly this may be due to the method of hardening. The majority were distinctly biconcave. I don't think any really contained any pigment bodies.

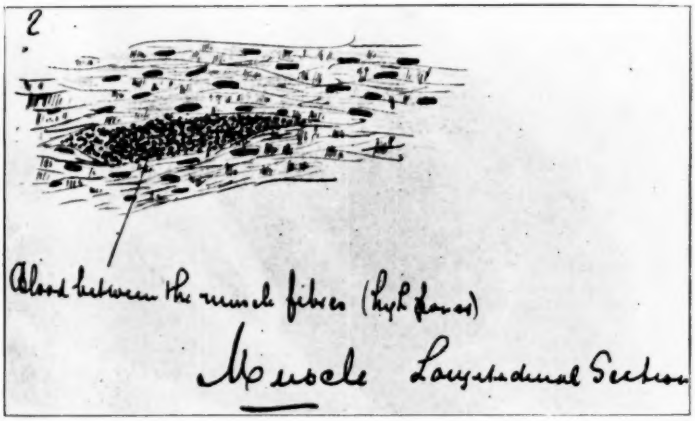
White corpuscles were about usual in number and mostly of the poly-morpho-nucleur variety.

In speaking to Principal Williams about this disease, he said that, reasoning from the intermittent character of the fever, *post-mortem* appearances, and other circumstances, he

should conclude that the etiology of this so-called malarial fever is one of the protozoa, which by some means or other gains access to the economy.

The periodic elevation and depression of the temperature point to the etiology of the disease being a living organism; in the case of bacteria, the elevations are the times when most of them are found in the blood, and the lower readings their sporulating or some other equivalent stage; something analogous to this occurs in surra.

In malarial fever, however, Dr. Bell said he found the blood absolutely "sterile," so I think we may conclude we have not to deal with any bacteria or vegetable parasite.



This supports the view that the cause is a protozoon, because means have not yet been found of artificially cultivating such parasites as the pyosoma bijeminum, which causes Texas fever and other protozoa.

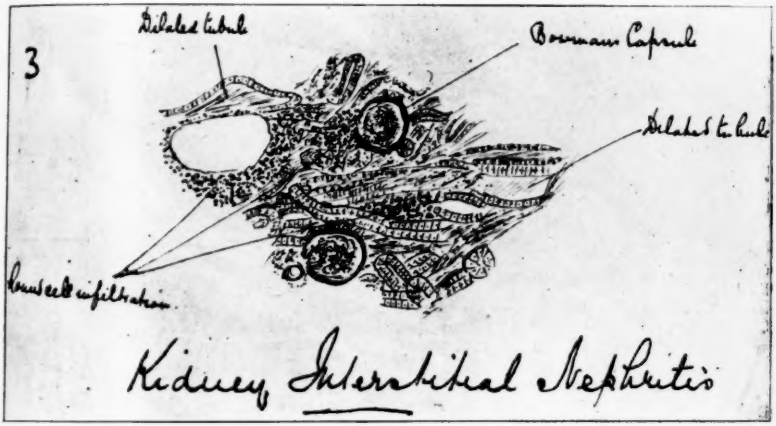
Perhaps a few notes on an article read at the meeting of the British Association (Edinburgh) last year by Dr. Manson, on "Malaria in Man," may help in elucidating the matter.

He says that in the blood of a patient just before stage of rigor you find in some of the red blood corpuscles a disc of proto varying in size, dotted all over with black specks of the characteristic pigment of malaria. This is the parasite.

If blood drawn during the rigor be examined, it shows

the black pigment bodies becoming concentrated more or less in the centre of the corpuscle, and the protoplasm surrounding them has been broken up into spherules. During pyrexia the spherules escape into the liquor sanguinis, and many have been absorbed by leucocytes, a few have contrived to enter the corpuscles. Later still, these intra-corpuscular spherules increase in size, acquire amœboid movements, become pigmented, and by degrees, as you approach the stage at which we began, these pieces of pigmented protoplasm attain the original size.

The above is the life cycle within the human body.



There is not much similarity between the pigmented bodies of malaria in man and those of the horse; perhaps it may be another type. Again, in malaria in man, quinine has a specific effect on the parasites, whilst in this, although of undoubted benefit (one veterinary surgeon I know says he has best results when it is mixed and administered along with Donovan's Sol), quinine is by no means a specific. I have never taken the temperature for any length of time, so I cannot say what type the fever is, whether tertian quartan, or quotidian, or irregular.

Infection.—The disease is non-contagious in the ordinary sense of the term. At first I thought it was only by drinking water on swampy or stagnant places that infection was produced: these are undoubtedly the most frequent sources;

swamp water in particular contains innumerable living organisms, but I have several times seen it in animals not allowed on these places: for example, this case.

There are no ticks to inoculate as in louping-ill, Texas fever, etc., but I may hazard the suggestion that, just as someone in Italy has recently proved that malaria can be transmitted from one person to another by means of the mosquito (*genus Culex*), and Ross in India has recently succeeded in infecting sparrows with proteosoma by bites from mosquitoes (particularly the "dapple-winged" variety), so also here it is just possible that that ubiquitous dipterous insect plays a part.

Under the heading of Pernicious Anæmia in "Friedberger's and Frohner's Veterinary Pathology," is described a disease which has some similarity to malarial fever, but which has only so far had about a dozen authentic cases recorded. There are one or two symptoms alike, viz., pale m. membranes, obstinate high temperature, frequently intermittent, and changes in the blood; but paralysis, a very diagnostic symptom in malarial fever, does not seem to be seen in this: in fact, weakness of the back and hind quarters, shown by uncertain gait, and crossing of the hind legs, offer clinically the earliest means of identifying this so-called malarial fever.

Thanking you, Mr. President and gentlemen, for your kind attention.

TUBERCULIN EXPERIMENTS.

THE sub-committee appointed to control the experiments recently undertaken by the Agricultural Department of Aberdeen University met recently in Marischal College. There were present—Rev. Dr. Smith, Newhills, convener; Mr. Gordon, of Newton; Colonel Innes, yr., of Learney; Dr. Tait, Inverurie; and Mr. Campbell, Old Cullen. There was submitted to the sub-committee the report of the work that has just been carried out in testing the reliability of tuberculin by Mr. M'Lauchlan Young, F.R.C.V.S., and Dr. James Walker, D.P.H., bacteriological assistant to Professor Hamilton. The committee expressed its high approval of the work that had been done, and agreed, in view of the fact that some of the results arrived at have opened up new and important lines of research, that the investigation be still further continued. Already 94 bullocks, 57 heifers, and 19 cows have been tested with tuberculin and examined after slaughter—that is, that 163 butchers' cattle and 19 cows have

been dealt with. The committee looked upon the work done among the younger cattle as being finished and conclusive; and resolved, in order to make the research regarding cows of a similar and thorough nature, that the work should be continued until something like 100—a sufficiently large number from which to make generalisations—have been dealt with. This, of course, retards the publication of the report for some time; but, in view of the important results that have been obtained from the younger cattle examinations, the committee allowed the following indication of what has been done to be made public:—

The method of procedure has been for Mr. Young to inoculate the cattle generally at the farms where the animals had been fed. A proportion of them have been inoculated at the slaughter-house byres in Aberdeen, in which case care was taken to test only animals that had been in the byres for at least 24 hours, and that were in a normal condition. After the animals were slaughtered they were examined by Dr. Walker; and, as showing the way in which the research has been carried out, and at the same time the power of tuberculin, it may be mentioned that Dr. Walker was afforded no information of the results of the testing until after his examination had been completed. Before going further, too, it might be mentioned that, although a number of the cattle turned out to be tubercular, the extent of the affections was in most cases exceedingly small, being confined to the lungs, mesenteric glands, bronchial glands, and such other parts of the body as are not used for human food. Of the 94 bullocks, 20 gave the characteristic reaction to tuberculin, and were found on examination to be tubercular. In addition to these, one animal was sick and refused its food, although the temperature did not rise beyond 103 degrees, which was taken to indicate that the animal was in all probability affected. In three other animals no reaction was obtained, but, on slaughter, tubercular lesions were found. In the first of these, an encysted nodule, probably no longer active, was found; while in each of the other two there was a minute calcareous tubercle, about half the size of a pea. From these two last-mentioned nodules guinea-pigs were inoculated, and the result showed that they were tubercular. Of the 57 heifers inoculated, five reacted, and all were found tubercular on *post-mortem*; while in three other cases, although no reaction was obtained, tubercular lesions were found. These three cases are explained in this way—that a subsidiary kind of experiment was tried on a small lot of cattle with a mixture

of equal parts of fresh and a year old tuberculin. The conclusions arrived at by the experts engaged in the research are:—

1. That fresh tuberculin, when used with care and under proper conditions, although not infallible, is a reliable diagnostic.

2. That old, or even a mixture of new and old tuberculin, is not reliable.

One interesting fact is that, without exception, all animals that reacted were found to be tubercular; while the cases in which no reaction was obtained in animals that were tubercular are explained by the tuberculin being old or the lesions exceedingly minute, and probably in their very earlier stages. It would have been impossible to have carried out a research of this kind without the aid of gentlemen willing to place their cattle at the disposal of the investigators. It has also been a feature of the research that the cattle obtained have been of the very highest character and only such as are dealt in by butchers of the first standing; and the committee are indebted in the extreme to Mr. Wishart (John Williamson, jun.), Mr. George Wood, and Mr. Leiper, who so kindly came to their assistance and supplied the bullocks and heifers.—*Aberdeen Free Press*, June 24th.

INJURING PROFESSIONAL BRETHREN.

BY JABEZ.

I NOTICE a communication in the VETERINARY JOURNAL for June from the pen of Mr. Hy. Thompson, of Aspatria, in which he severely takes to task the professional witnesses for the prosecution in the Carlisle case. There is very little doubt but that the gentlemen who gave evidence for the society made a mistake in appearing on that side, considering who the defendant was, and I daresay they see that now, and if the thing was to be done over again would act differently. It is easy to see that men, eminent in their profession, like Mr. Elphick and Mr. Hunting, might have questions put to them in an abstract manner as to whether such and such acts constituted cruelty, and—without knowing anything about the actual circumstances and the persons concerned—might give an opinion and then be subpœnaed and made to swear it. This is conceivable and, for aught we know, is what actually happened.

I think that most members of the profession sympathise with Mr. Hewson. It is possible, however, to go too far in villifying those who, at any rate, had the courage of their opinions, who openly expressed them, and whose action, little as one can palliate it, tended to injure one man only. Are there not others, I should like to ask Mr. Thompson, whose action damages not only one member of the profession but hundreds, and that in a very tender part—the pocket to wit. I know a book on ailments of stock, written by a member of the profession who was formerly a member of council, and in which symptoms and methods of diagnosis and prescriptions for treatment are given, and even pictures are not wanting. This book, I know to my cost, has a large circulation in the north of England and the south of Scotland, and the calling in of the local veterinary surgeon is often postponed till the book has been consulted and a prescription or two tried. If the case recovers, it is another puff for the book and for the person who wrote it, but if the experiment has been unsuccessful, the veterinary surgeon is sent for with a good chance of adding to his death roll and to the lowering of his reputation.

There are lecturers in agricultural colleges, too, who train factors and land agents, and farmers to doctor their own or their master's stock, largely to the exclusion of the veterinary profession.

Then, finally, there are the penny agricultural papers, where advice as to medicinal and other treatment of sick animals is freely given by the veterinary editor, often in spite of the fact that a veterinary surgeon is or has been attending.

(Lately in two of these papers the veterinary editor had the impudence to publish details of Schmidt's treatment for milk fever.)

I say that the doing of any of these three things, viz., publishing a doctoring book for stockowners, cramming veterinary skimming into amateurs, or acting as veterinary editor to penny papers, is unworthy of a member of our profession ; but what is to be said for the individual who, not content with doing one of them, takes on the whole three. Surely he is the last to pelt stones and shriek about unprofessional conduct.

The Editors much regret that in one of the issues of the JOURNAL the name of Mr. Savournin was incorrectly spelt, and herewith tender their apologies.

THE NEW VETERINARY COLLEGE, EDINBURGH.

ON Monday, the 29th May, the various medals and certificates gained during the past session were presented to the successful students by Mr. A. W. Mason, President of the Royal College of Veterinary Surgeons. Professor Owen Williams occupied the chair, and was supported by Mr. James Simpson, Ex-President of the Royal College of Veterinary Surgeons, and Professors Hunter, Macadam, Macdougall, Bradley, and Carpenter.

Professor WILLIAMS stated that the number of students was still increasing, that the present students had been most diligent, and that he fully expected a good pass. He also stated that Dr. Leith, Pathologist to Edinburgh Royal Infirmary, had accepted the chair of Pathology in the college, and would commence his duties next session.

Pathology of the Horse.—Medal (H. and Ag. Society): W. L. Gascoyne. 1st Class Certificates: J. Evans, H. Taylor, H. Dyson, A. McNae. 2nd Class Certificates: G. Barras, D. Macdonald. Principal's £20 Gold Medal: H. Taylor.

Pathology of the Ox, Sheep, Pig, and Dog.—Medal (H. and Ag. Society): W. L. Gascoyne. 1st Class Certificates: H. Taylor, J. Evans. 2nd Class Certificates: D. McDonald, H. Dyson, A. McNae.

Materia Medica.—Medal (H. and Ag. Society): B. Runciman. 1st Class Certificates: T. Runciman, S. C. Binks, H. E. Martin. 2nd Class Certificates: W. G. Burndred, E. Ashworth, A. Spreull.

Pathology.—Medal (H. and Ag. Society): T. Runciman. 1st Class Certificates: B. Runciman, E. Ashworth, A. Spreull. 2nd Class Certificates: S. E. Binks, H. E. Martin, W. G. Burndred.

Demonstrators of Anatomy.—Bronze Medal: E. Ashworth, B. Runciman.

Curator of Museum.—Bronze Medal: H. Kirby, W. L. Gascoyne.

Senior Anatomy.—Medal (H. and Ag. Society): H. Kirby. 1st Class Certificate: R. Finch. 2nd Class Certificate: H. B. Kauntze, Z. B. Rutherford.

Junior Anatomy.—Medal (H. and Ag. Society): W. Hepburn. 1st Class Certificate, Stanley Elley.

Practical Anatomy.—Medal: W. A. Elder. 1st Class Certificates: H. H. Lord, H. Kirby, H. B. Kauntze, R. Finch.

Physiology.—Medal (H. and Ag. Society): Harold Kirby. 1st Class Certificates: Jas. Latta, R. Finch, W. A. Elder, H. B. Kauntze.

Physics.—Medal (H. and Ag. Society): W. Hepburn.

Histology.—Medal: W. D. Lindsay. 1st Class Certificates: W. A. Elder, R. Finch, E. T. Willows, R. M. Jones, H. Kirby, H. B. Kauntze. 2nd Class Certificates: T. B. Rutherford, F. Sheppard, Em. Morton, F. Dunning, G. T. E. Anderson.

Chemistry.—Medal (H. and Ag. Society): W. Hepburn.

Botany.—Medal (H. and Ag. Society): W. Hepburn. 1st Class Certificates: R. Mairs, S. Elley.

Zoology.—Medal (H. and Ag. Society): W. Hepburn. 1st Class Certificates: S. Elley, R. Mairs.

Meat Inspection.—Medal (H. and Ag. Society): H. Taylor. 1st Class Certificates: H. Dyson, D. Macdonald, J. Evans, J. C. Blake, G. Barras, A. McNae.

Bacteriology.—1st Class Certificate: W. G. Burndred, B. Runciman, T. Runciman, H. E. Martin, A. Spreull, E. Ashworth, S. C. Binks. 2nd Class Certificate: J. Stafford.

Hygiene.—Medal: B. Runciman. 1st Class Certificate: T. Runciman, A. Spreull, S. C. Binks. 2nd Class Certificate: H. E. Martin, E. Ashworth, W G. Burndred.

GLASGOW VETERINARY COLLEGE.

MEDALS, granted by the Highland and Agricultural Society, the late Professor Allen Thomson, of London, and Principal M'Call, and Certificates of Merit were awarded in different branches of study as follows:—

Medicine and Surgery (Horse) Written Examination.—Silver Medal: John Stevenson. 1st Class Certificates: W. Watson, J. J. Aitken, P. M'Kinlay. 2nd Class Certificates: W. W. Lang, R. Porteous, E. P. Jenkins.

Medicine and Surgery (Cattle) Written Examination.—Silver Medal: John J. Aitken. 1st Class Certificates: W. Watson, J. Stevenson, P. M'Kinlay. 2nd Class Certificates: W. W. Lang, James M'Intyre, R. Porteous.

Materia Medica and Therapeutics.—Silver Medal: John P. Small.

Pathology and Morbid Anatomy.—Silver Medal: John Baird.

Veterinary Hygiene and Dietetics.—Silver Medal: John P. Small.

Zoology.—Silver Medal: James F. Craig, M.A. First Class Certificate: J. Wallace, N. H. M'Alister, John Rankin. 2nd Class Certificates: G. W. Weir, J. M'Farlane.

Parasitology.—Silver Medal: W. Watson. 1st Class Certificates: W. W. Lang, J. Stevenson. 2nd Class Certificate: J. J. Aitken, P. M'Kinlay, J. Montgomerie.

Junior Anatomy.—Silver Medal: James F. Craig, M.A. 1st Class Certificate: N. H. M'Alister, John Rankin.

Senior Anatomy.—Silver Medal: W. M. Ferguson. 1st Class Certificate: Archibald Logan. 2nd Class Certificates: Albert M'Dowell, J. H. Lyons.

Physiology.—Silver Medal: W. M. Ferguson. 1st Class Certificate: James M'Cutcheon. 2nd Class Certificates: Archibald Logan, Albert M'Dowell.

Chemistry.—Silver Medal: J. F. Craig, M.A. 1st Class Certificate: James Wallace. 2nd Class Certificate: John Rankin.

Botany.—Silver Medal: John Rankin. 1st Class Certificates: J. F. Craig, M.A., J. Wallace. 2nd Class Certificates: N. H. M'Alister, J. M'Farlane.

Best Professional Examination in Veterinary Medicine and Surgery (Cattle), before the Board of Examiners.—Gold Medal (by Principal M'Call): Patrick M'Kinlay.

Best Professional Examination in Veterinary Medicine and Surgery (Horse) before the Board of Examiners.—Gold Medal (by Principal M'Call): William Watson.

Best Professional Examination in Anatomy, before the Board of Examiners.—Gold Medal (by the late Dr. Allen Thompson): James M'Cutcheon.

Stable Management.—Silver Medal: A. P. Logan, Ballyclare.

GLASGOW VETERINARY MEDICAL ASSOCIATION.

AT a meeting of the members of this society, held within the theatre of the college—Principal M'Call in the chair—the following gentlemen were awarded the honorary and fellowship diplomas of the society, viz.: William Whyte Lang, Kilmarnock, Dumbartonshire; John James Aitkin, Kingstown, Dublin; Patrick M'Kinlay, Alexandria, Dumbartonshire; William Watson, Poyntz Pass, Armagh; John Stevenson, Dumbarton, Dumbartonshire; A. F. Stonewall Jackson, London; Ernest P. Jenkins, Swansea, Glamorganshire.

Army Veterinary Department.

Annual Dinner.—The annual dinner of the Army Veterinary Department was held at the Whitehall Rooms, Hotel Metropole, on the 30th inst., and the following officers were present:—Vet.-Colonels F. Duck, C.B.; J. D. Lambert, C.B. Vet.-Lieut.-Colonels C. Clayton; G. Durrant; G. J. R. Rayment; W. B. Walters, C.B.; G. A. Oliphant; J. H. B. Hallam, C.I.E. Vet.-Majors J. J. Phillips; J. Burton; W. B. Spooner; S. Duff-Gillespie; T. Flintoff; D. C. Pallin; J. A. Nunn, C.I.E., D.S.O.; G. H. Fenton; S. Longhurst; J. D. Edwards; T. A. Killick. Vet.-Capts. S. M. Smith; E. H. Hazelton; J. A. Meredith; E. J. Lawson; F. B. Drage. Vet.-Lieuts. R. L. Cranford; H. B. Knight; W. D. Smith; H. T. Sawyer; A. E. Clarke; W. E. Russell; W. M. Millar; H. M. Durrant; A. J. Williams; J. J. Griffith; R. St. C. Houston; A. Olner; and Messrs. W. Dawson and A. Jones.

Arrivals.—Vet.-Major F. F. Crawford arrived from India, 5th inst., on three months' leave of absence.

Vet.-Major E. Day returned from South Africa, 10th inst.

Vet.-Lieut. A. England arrived from South Africa, on completion of foreign tour of service.

Extract from "London Gazette."—Vet.-Lieut. A. C. Newsom is promoted to Vet.-Captain.

Honorary Secretaries of veterinary medical societies and associations are informed that if they will forward the MSS. of their proceedings before the 18th of the month, the Editor will have much pleasure in returning them proofs within a few days thereafter, so as to enable them to be correctly inserted in the VETERINARY JOURNAL.

BOARD OF AGRICULTURE.

ANNUAL REPORTS OF PROCEEDINGS UNDER THE DISEASES OF ANIMALS ACTS, THE MARKETS AND FAIRS (WEIGHING OF CATTLE) ACTS, ETC., ETC., FOR THE YEAR 1898.

(Presented to both Houses of Parliament by command of Her Majesty.)

SOME months ago we received the annual report of the Board of Agriculture of an American State, and congratulated it on its promptness in laying its report so soon before the public. We ask—How is it that in Britain such things take so much time to publish?

This report commences with a review of the history of cattle-plague, foot-and-mouth disease, and pleuro-pneumonia, from which we quote the following eminently satisfactory statements:—

At no period during the last sixty years has the stock of the whole of the United Kingdom been so free from contagious diseases as at the present time, or the trade in cattle been so freely carried on, there being now no Order or regulation in force which prevents any farmer or owner of stock from driving his cattle in any direction he may think fit, sending them by rail or road to any part of the country, however distant from his home, or exposing them for sale in any market, fair, or sale-yard throughout the country.

But the ordinary stock-owner has not alone benefited by this immunity from disease; breeders of pedigree cattle have also reaped great advantages, because their foreign customers know that when purchasing cattle in Great Britain or Ireland they incur no risk of introducing pleuro-pneumonia or foot-and-mouth disease into the country to which they are taken. In this respect the cattle of the United Kingdom are in better position, from a sanitary point of view, and can be more safely purchased, than animals of the same class in almost any other country in Europe.

The report goes on to speak of swine-fever, and, as it is of much interest, we insert it in full.

Swine Fever.

The disease which has commanded most attention from the Board during 1898 has been swine fever.

The labour entailed in reducing it even to its present smaller limits has been only equalled by the work which was carried out during the time of the cattle-plague in the years 1865–6.

It cannot be doubted that the success which attended upon centralisation of administration in the case of the eradication of pleuro-pneumonia led many persons to believe or hope that swine fever would yield with equal facility if it were taken up by the Board of Agriculture.

At the time when the Board was called upon to undertake the task of suppressing swine fever, very few persons appear to have been acquainted with the fact that some of the conditions which existed in regard to this disease were not only different to, but, in some respects, entirely the reverse of, pleuro-pneumonia.

When the Contagious Diseases (Animals) Pleuro-Pneumonia Act, 1890, was passed, pleuro-pneumonia had been materially "reduced" by the action which had for many years been taken by the local authorities, and their failure to stamp out the disease was mainly due to the very irregular manner in which the powers that had been given to them in their different districts had been executed. In confirmation of the first statement it is only necessary to refer to the returns of the disease which have been issued by this Department, in which it will be found that, while the number of outbreaks in Great Britain amounted to 3,262 in 1874, they had, under the action taken by the local authorities, been reduced to 474 when the Pleuro-Pneumonia Act came into force in 1820; and, further, while the disease was returned in 1874 from 71 counties, in 1889 it was limited to only 41 counties; but I may observe that from inquiries which had in former years been made in various parts of the country, it is quite certain that the number of centres of disease in 1874 had been vastly over-estimated, as a result of errors in diagnosis.

In the case of pleuro-pneumonia the disease could not fail to be eradicated directly each centre was found, by the slaughter of the diseased and contact animals—indeed, it might have been successfully dealt with by isolating or imprisoning for life all the herds in which it existed, but a procedure of this kind would have delayed the ultimate success of such a system for many years if no inducement had been offered to the owners of diseased stock to give notice of each centre of disease.

Again, the tracing of cattle is a comparatively easy task; they are animals of large value, cannot be moved without observation, and most of them carry some distinctive mark.

All these conditions, which assisted very materially in eradicating pleuro-pneumonia, are wanting in the case of swine fever.

In the first instance the returns of the Department show that under the varying measures adopted by the local authorities, swine fever had very materially "increased" between the time when it was first scheduled in 1879 and the date when the Board took it over. The outbreaks in 1879 amounted to 2,765, but in the first whole year (1894), when it was transferred to the Board, no fewer than 5,682 outbreaks were confirmed.

It was also discovered that the disease was more widely spread than was imagined. Whereas in 1879 it was returned in 53 counties in Great Britain, in 1894 centres of the disease were found to exist in 73 counties. Being thus widely distributed, the possibility of enclosing all the centres of disease within areas of comparatively small limits, as was done in the case of pleuro-pneumonia, became impracticable. Another great difficulty which exists in connection with the eradication of swine fever is that in many cases it is impossible to trace the diseased swine to their origin. This difficulty has often arisen in consequence of the great similarity which one pig has to another.

Again, swine fever, unlike pleuro-pneumonia, is a disease, the virus of which can be transmitted by almost every known means which regulate the spreading of contagious or infectious diseases, a fact which greatly minimises the advantages which have heretofore been obtained by imposing restrictions regulating or prohibiting the movement of living animals. That the disease is to some extent amenable to, and capable of, being very materially reduced by restrictions of an extremely severe character is evidenced by the results which have been obtained whenever the Swine Fever (Infected Areas) Order of 1896 has been applied to any district where the disease has been prevalent, but, unfortunately, these restrictions are of such an extremely onerous nature that as soon as the disease has been reduced to comparatively small limits within the scheduled areas the owners of pigs agitate for and demand their removal, with the result that the disease is sooner or later introduced.

There are certain parts of the country in which the measures taken by the Board have been most successful, and have very materially reduced the prevalence of the disease. For instance, in Bedfordshire, 116 outbreaks were recorded in 1894, while in 1898 they had been reduced to 26; in Cheshire the outbreaks fell from 370 to 121; in Huntingdonshire from 176 to 19; in Somersetshire from 596 to 73; in Staffordshire from 394 to 149; in Wiltshire from 256 to 61; and in the West Riding of Yorkshire from 615 to 188. Further, while in 1894 there were 18 counties in England in which over 100 outbreaks occurred, in the year 1898 this number had been reduced to 5. If the disease can be thus reduced in small districts, it is fair to assume that if the Swine Fever Areas Order could be enforced for a lengthened period all over the country similar satisfactory results might be obtained.

But there will always remain one cause in operation for perpetuating swine fever, which must for ever be a source of trouble in connection with the ultimate eradication of the disease. The experience gained in the laboratory of the Department in the last four years, during which time many thousands of specimens have been examined by the veterinary officers of the Board, goes to show that a great many more pigs recover from swine-fever than was ever imagined. These are mostly old animals, and they apparently do not present sufficient evidence of swine-fever during life to lead their owners to believe that they are affected with that disease. Each of these animals during its prolonged illness becomes a centre from which the disease may be unknowingly conveyed by persons or substances which have been in contact with them, and it is not improbable that they are sometimes sold and re-sold while in this condition of ill-health, and there is no doubt that during their movement in all kinds of conveyances, and by their exposure for sale in public markets, they become the means of distributing the infection of the disease wherever they may be taken.

For these reasons, as I have before explained, swine-fever is a disease which does not lend itself to the stamping-out system in the same degree as other diseases which have yielded to that form of treatment. However, although the time is not apparently near when it is likely to be eradicated, it must be admitted that the results which have attended the operations of the Board during the last four years have not been altogether without success, for on reference to the returns it will be found that while the number of outbreaks in 1894 amounted to 5,682, they have been reduced to 2,514 in 1898.

To those who have taken an interest in the history of this disease, it is well known that swine-fever has never yet been eradicated from any country in the world where it has become widely spread and obtained a good foothold. An attempt was made in the United States of America to stamp it out somewhat on the same lines as pleuro-pneumonia, but it proved to be unsuccessful, and it is probably as rife now as ever in that country.

The attention of the Bureau of Animal Industry in the United States, which is under the direction of Dr. Salmon, who is chief veterinary officer, is now being concentrated upon preventive inoculation, and it is reported that in some instances immunity has been given to pigs which formed part of the large herds of swine in which swine-fever has appeared, and a hope exists that this system may prove to be effective in preventing the spread of swine-fever.

During the year 1898, 17,124 reports of swine-fever have been received, and in each instance a veterinary inquiry has been made locally into the nature of the disease; 90 per cent. of these reports have, however, proved to be unfounded.

In many instances, where the post-mortem examinations have not revealed any lesions of a decided character, it has been necessary to keep the remaining

animals under observation, and to require a further veterinary examination after a few days. The labour entailed in carrying out this duty has been very great, 5,452 specimens having been forwarded to the laboratory for examination by the veterinary officers of the Board during 1898, but in only 2,506 instances have the lesions of swine-fever been discovered in the parts received.

A description, with illustrations, has already been given in former reports of the various post-mortem appearances presented by the lesions in swine-fever, but beyond the fact that there is a very material reduction in the number of cases in which old-standing lesions have been present, it may be said that there is nothing to add to that which has been written from a professional point of view on the subject of this disease.

The report next deals with rabies, and here we have much pleasure in congratulating the Board of Agriculture on its marked success in dealing with this terrible disease. It goes on to say:—

Experience extending over many years had shown that dogs were not unfrequently reported by the police and others as being affected with rabies, which were suffering not from true rabies, but from some of the numerous diseases to which dogs, more particularly young dogs, are liable.

It was therefore decided from the commencement that in every instance where a dog was slaughtered on suspicion of rabies a *post-mortem* examination should be made by the local veterinary surgeon and a report forwarded by him to the Board, containing a description, when it could be obtained, of the symptoms present prior to the dog's slaughter, and a description of the *post-mortem* appearances; he was also requested to state in his report whether, in his opinion, the disease was rabies or not.

These reports, which amounted to 283 during 1898, have been most critically and carefully examined by the veterinary officers of the Board, and in all instances where there was reason to suspect that the dog had been affected with rabies, experimental inoculations have been carried out with a view to decide the question. This has been done in 33 instances, but in only two has rabies been confirmed. In other instances, where a veterinary surgeon of known experience had seen the dog during life, and made a *post-mortem* examination, and certified that the animal was rabid, his certificate has been accepted.

Before imposing the Muzzling Order in any district the Board have taken into consideration various important points. The limits of the areas have been declared quite irrespective of county boundary lines, and on the principle that a rabid dog when on "the march" may be assumed to have wandered from its home in various directions, for a distance of probably not less than 15 miles, and the Muzzling Order has, therefore, as a general rule, been applied to areas of 30 miles diameter.

An important step in connection with the work has been the employment of the inspectors to trace dogs which have been in contact with a rabid dog, and in the performance of this duty they have been most successful in inducing many of the owners to slaughter dogs which had been exposed to the infection. In every instance where the owners have been disinclined to comply with the wishes of the Board in this respect, the Board have insisted upon the animals being isolated from other dogs for a period of six months. The labour connected with this duty has been very considerable, but the efforts of the Board have been crowned with success, and unless the disease be again re-introduced from without, the date of its final eradication is apparently not far distant.

In connection with this work most astringent regulations have to be complied with by all persons desiring to import dogs into Great Britain. On arrival in this country every dog is required by the Board to be isolated for a period of not less than three months, and a strict supervision is kept over these dogs by the Board's inspectors to see that the requirements of the Board are carried out.

During the year 1898, 17 cases of rabies were reported and confirmed by the Board, and 87 dogs were destroyed as having been exposed to infection. The number of counties where the disease was found to exist was only 10. This is a marked diminution compared with any previous year, the lowest number of cases reported since 1887 being 38, while in 1895 they amounted to 672.

The report of the chief veterinary officer then proceeds to deal with glanders and farcy, and we are pleased to see that a marked diminution has occurred in these two forms of disease. It says :—

Glanders or Farcy.

There has been a gradual decrease in the number of outbreaks of glanders or farcy in Great Britain since 1893, and of the 1,385 animals attacked in 1898, no less than 1,199 cases occurred in the county of Middlesex, including London, and the county of Lanark, including Glasgow. If the local authorities of those two districts could eradicate the disease, it should not be a difficult matter to stamp it out in the rest of the country.

In many respects glanders resembles tuberculosis and pleuro-pneumonia ; it is a disease in which the lesions are mainly located in the lungs and very difficult to detect in the early stages. Science has, however, in the discovery of mallein, provided an agent which when skilfully applied enables us with almost unerring accuracy to detect the presence of the disease in horses, even in its earliest stages, and long before any clinical evidence is present. If such an agent had been discovered for the detection of pleuro-pneumonia, that disease might have been eradicated at less than half the cost which was incurred in stamping it out, because it would only have been necessary to slaughter all the cattle obviously affected, and those which reacted, instead of the entire infected herd and other cattle which had been directly or indirectly exposed to infection.

The question as to what further measures can be taken to prevent the spreading of glanders is at the present time under the consideration of a Departmental Committee appointed for that purpose, and there is no doubt that the one point to which their most serious attention will be devoted is the most practicable manner in which mallein can be utilised.

It is obvious that the most successful results would be obtained from the slaughter of every horse that reacted ; but the enforcement of such a measure would hardly be likely to appeal to the minds of that class of owners among whose horses glanders is most prevalent, unless some very liberal provision is made to compensate them for the loss of the services of an animal which, to all external appearances, is healthy, and may for a long time before exhibiting any external sign of the disease render the owners useful and valuable services.

Some idea of the extent to which glanders may exist in an obscure form in a stud of horses, and its presence be revealed by the aid of mallein, may be gathered from the following extract taken from a paper in "la Prophylaxie de la Morve du Cheval," written by Professor Nocard, of the Alfort Veterinary

College in France, for the Thirteenth International Congress of Medicine, held in Moscow on September 22nd, 1897:—

"Of 10,234 horses tested, 2,037 presented the characteristic reaction, which amounts to 20 per cent. This high percentage does not, however, really exhibit the gravity of the case; as a matter of fact, of 23 depots belonging to the company the horses in 16 were only slightly infected; of the other seven, the number infected varied from 32 to 56 per cent."

ALEX. C. COPE.

March, 1899.

Continuing to peruse the report, we now come the assistant-secretary's (Major Tennant) portion of it, and we give a few of the most interesting parts of it.

We would first observe that Major Tennant is, we believe, resident in England, therefore it is not right of him to advocate the practice of dishorning, which is illegal in England; but probably Major Tennant wrote that portion of his report advocating dishorning when on the Irish Sea, and consequently advocated an operation which is legal there. We have always advocated the dishorning of cattle as a most humane operation, and feel glad that we have the support of such an experienced authority as Major Tennant.

The inspectors of the Board have, as in former years, made numerous voyages from Ireland to Great Britain in vessels carrying consignments of stock, and have frequently inspected the vessels on arrival with a view to observe the working of the arrangements made for the safety of the animals during the voyage.

Their reports show that the regulations are generally complied with, and there is some reason to believe that the practice of making passages and inspections tend to stimulate the agents of the shipping companies to take better care of animals on board. But it is obvious that, for the improvement of a trade of such magnitude, the efforts of the Board's inspectors should be supplemented by the cordial co-operation, not only of shipping companies, but of stock owners themselves, if individual care is to be given to animals that are too often suffering from the fatigue and exhaustion that must be the necessary accompaniment of a journey performed under conditions so novel to the animals carried.

A great amount of unnecessary suffering is undoubtedly still endured by cattle during sea transit owing to the fact that they have not been dishorned at an early age. The importance of an early removal of the horns amongst the class of cattle likely to be subjected to movement by sea or railway has often been pointed out, and it is probably no exaggeration to state that the sufferings of cattle and the injuries received by them during transit would be reduced by one-half if the humane practice of removing the horns at an early age were to be generally adopted.

It is only necessary for any observant person to watch for a short time horned cattle that may be on a vessel or in a railway truck to recognise the needless and terrible suffering and cruel injuries to which the poor animals are exposed owing to the combativeness engendered amongst them by the discomforts of their strange surroundings—a combativeness that, apparently, does not exist amongst cattle that have been subjected at an early age to the simple and comparatively painless process needed to prevent the development of the horns. Much stress has been laid by those interested in the Irish

cattle trade on the excellent condition in which cattle arrive from the United States as compared with those brought from Ireland. A very large majority of the former that arrive in this country have been deprived of their horns, and it is much to be regretted that a process so simple—when the animals treated are still young—should not long ago have been generally adopted by stockowners, both in Ireland and in Great Britain, in their own interests, if not in the interests of mercy and humanity.

It was stated in the report for the year 1897 that, owing to representations made to the Board and to the Government of Ireland by influential representatives of the live-stock trade of the United Kingdom as to the injuries inflicted on animals during land transit, and the consequent pecuniary loss incurred by owners, a Departmental Committee had been appointed in July of that year to make investigations as to the extent of the evil complained of, and to suggest the remedies that might with advantage be adopted.

Investigations of an exhaustive character having been carried out, both in Great Britain and Ireland, the report of the Committee was issued in the month of May last.

The report shows in effect that, whilst much of the suffering from fatigue and exhaustion to which animals are subjected on an often long and tedious journey is unavoidable, unnecessary injury is, on many occasions, caused by the absence of satisfactory arrangements by the railway companies concerned for the proper treatment of the animals before, after, and during transit, and by the insufficiency of the steps taken by owners of stock to ensure proper feeding, watering, and rest. Whilst the injuries caused in Ireland are of a particularly serious character, they are by no means infrequent in Great Britain, and, with a view to the mitigation of these evils, the committee made, amongst other recommendations, the following:—

That pens or guides should be generally used where cattle are loaded in trains.

That loading banks should be constructed level with the truck floors.

That all trucks should admit of inspection and ventilation at floor level.

That all new trucks intended for cattle should be fitted with falling loading doors.

That all new trucks intended for cattle should be roofed.

That battens should be placed lengthways in the middle of the truck opposite the doors, but crossways at the ends.

That all cattle trucks should be built free from projecting bolt heads, etc., inside, and that all internal angles or projections should be rounded.

That trucks should be constructed of one standard size.

That all new trucks used for cattle should be fitted with screw couplings.

That the number of cattle trucks fitted with pipes or vacuum brakes should be increased, so that the passenger service may be more generally made use of when goods connections are inferior.

That, if practicable, the recommendation of the Committee of 1870, as to a minimum rate of speed, should be acted upon.

That cattle should have precedence as perishable goods.

That horned and dishorned cattle should be kept separate during transit.

That when different kinds of animals are carried in the same truck, horned stock should be tied, and barriers placed between different kinds of stock.

That bulls should be tied during transit.

That railway companies should have power to detain and feed, at the expense of the owner, animals which, after a sea voyage, are, in their opinion, unfit to continue their journey.

That when animals are in the hands of the same company for more than 24 hours from the time of being trucked, that company should be required to

unload and feed them, and should be entitled to recover a reasonable charge from the owner.

That where there is reason to believe that animals have been 24 hours in transit without food, the company should be entitled, at their discretion, to unload and feed them, and to recover a reasonable charge against the owner.

That railway companies should have power to refuse to carry animals, in their opinion, unfit to travel.

That it should be made penal to send on a journey cows so near their time as to entail danger of calving during transit.

That permissive powers should be given to local authorities to make bye-laws requiring the licensing of drovers plying for hire within their authority.

That the substitution of an approved goad for the stick should be encouraged.

That the dishorning of young cattle should be encouraged.

That, generally, the duties relating to cattle transit should be placed in the hands of local authorities, subject to the supervision of the central authority.

As a preliminary to any further steps that may be found to be desirable to give effect to these recommendations, it was deemed desirable to address the following circular letter to all railway companies in Great Britain :—

Board of Agriculture,
4, Whitehall Place,
London, S.W.,

12th December, 1898.

Sir,

I am directed by the Board of Agriculture to enclose, for the information of your Directors, a copy of the Report of the Departmental Committee appointed by the Board of Agriculture to inquire into and report upon the Inland Transit of Cattle [C. 8928].

Your Directors will observe that the Committee, which was a very representative one, state that they received evidence of a large amount of suffering endured by animals in transit, the mitigation of which is an end desired by all, and that they were impressed by the statements made to them as to the deterioration in value of both store and fat cattle as the result of that suffering, and the heavy consequent loss both to the producer and the country at large.

The Board have now under consideration the means by which effect can most readily be given to the recommendations of the Committee, but in the meantime they would be glad if your directors would give their early and earnest attention to a subject which is of the greatest importance to stockowners throughout the country, and in regard to which it is clear that there is still room for substantial improvement so far as the carriage of animals by railway is concerned.

I am, Sir, your obedient Servant,

T. H. ELLIOTT,
Secretary.

With regard to horse-boxes, the reports of the Board's inspectors have shown that, although the requirements of the Order relating to cleansing have been on the whole fairly well complied with, instances of neglect have occasionally occurred, and some want of uniformity has existed in the methods of cleansing and disinfection followed at different stations and in different districts. The Board, accordingly, ordered the following circular letter to be issued, calling the attention of local authorities and railway companies to the provisions of the Order, and the practical importance of efficient cleansing and disinfection of horse-boxes with a view to prevent the spread of disease :—

SIR,—I am directed by the Board of Agriculture to inform you that they think it desirable, in view of representations recently made to them on the subject, to call attention to the requirements of Article 15 of the Animals (Transit and General) Order of 1895, with regard to the cleansing of horse-boxes.

That Article provides that :—

"(1.) A horse-box used for horses, asses, or mules on a railway shall, on every occasion after a horse, ass, or mule is taken out of it, and before any other horse, ass, or mule, or any animal is placed therein, be cleansed as follows :—

"(i.) The floor of the horse-box, and all other parts thereof with which the droppings of any horse, ass, or mule have come in contact, shall be scraped and swept, and the scrapings and sweepings, and all dung, sawdust, fodder, litter, and other matter shall be effectually removed therefrom ; and

"(ii.) The sides of the horse box, and all other parts thereof with which the head or any discharge from the mouth or nostrils of any horse, ass, or mule has come in contact shall be thoroughly washed with water by means of a sponge, brush, or other instrument.

"(2.) The scrapings or sweepings of the horse-box, and all dung, sawdust, fodder, litter, and other matter removed therefrom shall forthwith be well mixed with quicklime."

The efficient enforcement of these requirements is of great importance, having regard to the value of the class of stock involved, and the Board would be glad if the local authorities and railway companies concerned would take the matter into consideration at an early date, with a view to the issue of such further instructions as may appear to be requisite for this purpose.

I am, Sir, your obedient Servant,
T. H. ELLIOTT,
Secretary.

ANTHRAX.—THE INFLUENCE OF TANNERIES IN SPREADING THE DISEASE.*

BY MAZYCK P. RAVENEL, M.D., OF PHILADELPHIA.

Bacteriologist to the State Live-Stock Sanitary Board of Pennsylvania ; Instructor of Bacteriology, Veterinary Department, University of Pennsylvania.

(From the Laboratory of the State Live-Stock Sanitary Board.)

MY attention was called to this subject by the outbreak of anthrax in men and in cattle at three different points in the State of Pennyslvania during the summer and fall of 1897. From reports which I have not been able to entirely verify, it is likely that so many as 12 men and 60 head of cattle died of anthrax near tanneries in this State during the year. The men were, without exception, operatives at the tanneries, while the cattle were on pastures watered by the streams carrying off the refuse of these tanneries.

The importance of the subject led us to make as thorough an investigation of these outbreaks as was possible under the circumstances. At the instance of Dr. Leonard Pearson, State Veterinarian of Pennsylvannia, on December 9th, 1897, I visited the tannery at Proctor, Pa., where the last outbreak occurred. I found the operatives considerably excited, standing in groups about the street, as a result of three cases of anthrax, two of which had resulted fatally within a short period of time, and one of which was then under

* Read by title before the American Public Health Association, 1898.

treatment. The last case, fortunately, terminated in the recovery of the patient. From one of the physicians in attendance on this case I learned that four men had died in the vicinity, besides the two just mentioned, from an acute affection which was diagnosed at the time as pneumonia, but which he considered, in the light of subsequent events, to have been cases of pulmonary anthrax. I made bacteriologic examinations from the blood and from the eschar which marked the initial lesion in the man then sick, and from them isolated the anthrax-bacillus, which proved to be of quite a virulent type when inoculated into guinea-pigs. From the liver and spleen of a cow that had died at one of the other two tanneries at which outbreaks occurred, I also succeeded in isolating virulent anthrax-bacilli. The superintendent of the third tannery, which I did not visit, told me that 24 cases of "malignant pustule" had developed among the operatives recently, three of the cases proving fatal. There was no bacteriologic examination in any of these cases, and the diagnosis was made entirely from the symptoms. Below this tannery at least 12 head of cattle had died in a short time before my visit to the neighbourhood, deaths occurring so far as 10 miles down the stream. From one of these animals I obtained specimens some time after death. Though I failed to isolate the anthrax-bacillus, the symptoms were such as to leave little doubt that anthrax was the cause of death in most, if not in all, of the cattle which had died.

In tracing the history of the cases at these three tanneries, and in looking for the cause of the outbreak, I gained the information that they were all operated under the United States Leather Company, and that each of them had received a part of a cargo of hides shipped from China. Among the operatives, these Chinese hides go under the technical name of "murrain" hides, and are believed by them to come from cattle which have died of disease. However, the superintendent of the Proctor tannery did not agree in this opinion, believing that some of them had been from animals slaughtered for beef and that some of them had been taken from animals dead of disease. There seems to be no positive way of telling the difference between the two.

This brief outline shows the danger to which every State engaged in the tanning business is at all times liable. It cannot be doubted that from all the countries which ship raw hides to the United States there may come at times the hides of cattle which have died of anthrax. There is a

law in the United States providing against the importation of hides from districts where anthrax is known to exist, but the difficulty of enforcing it lies in the fact that the hides often do not come directly from such districts, and also that the reports from some such countries are exceedingly meagre, and it is impossible from these reports to be sure of the good health of the cattle there.

Occasionally, cases of anthrax are reported among workers in leather, and one case has occurred in the city of Philadelphia in a brush maker employed in making coarse scrubbing-brushes, in the manufacture of which a mixture of hog's bristles and horse-tail hairs were used, the hair being all imported from Siberia and the southern part of Russia, both sections of Europe in which anthrax occurs quite frequently. One instance has come under my observation in which a horse died of anthrax, the infection seeming to come either from the leather of which the collar was made, or else from the hair with which it was stuffed, although I was not able to prove this mode of infection positively. The horse was one of a number in a stable all doing similar work, and all had been together for quite a period of time, but none of the others had the disease either previously or after.

In studying the cases which occurred in men at the tanneries in this State, I was struck with the fact that, so far as I could obtain positive histories, all of these cases occurred in those handling the hides in a dry state, and in no case could I trace the history of an infection taking place after the immersion of the hides into the tanning fluids. While there are some reasons for this, such as the inability of a soft and flexible hide to produce a wound in the skin, as is easily done by the ragged edge of a stiff, dry hide, it occurred to me that the tanning fluid might have such an action on the anthrax-germs as to prevent danger from them after exposure to these fluids. This has led me to make a study with the object of determining what, if any, disinfecting action the process of tanning has on anthrax-germs in the spore-stage.

Briefly outlined, the process of tanning as carried out in the tanneries of the State of Pennsylvania, which I presume is that in common use elsewhere also, is as follows: The hides are soaked in clean water for about 10 days, then milled, and sweated for four days in order to loosen the hair, after which they are milled again and put on the beams for scraping. They next go into the tanning liquors, which are seven in

number. The hide is put into a solution made of three parts of water to one part of liquor No. 1. This liquor is changed quite frequently, so that at the end of five or six days it is of the strength of liquor No. 2, in which it is left from six to 10 days; it is then transferred to No. 3 for about 12 days; No. 4, for 16 days; No. 5, from 18 to 20 days; and Nos. 6 and 7, for about 20 days, the whole process occupying usually about 120 days. No chemicals whatever are used in the process, except the solution of bark.*

Through the kindness of Superintendent J. H. Ball, of the tannery at Proctor, Pa., I obtained a supply of each of these seven tanning fluids. I have with them carried out two separate experiments, each having for its object the determination of the effect of these fluids on the spores of anthrax. I have used silk threads impregnated with a spore-culture of the germ and dried. These threads are easily penetrated, and contain nothing which would protect the spores from the action of the fluids, as is the case with hides. Hides contain a large amount of albuminous material, which, as is well known, combines with tannin to form a protective covering for bacteria, so that we may consider that the spores on silk threads should be more easily killed than spores contained in hides, or in dried blood which may be adherent to hides. The culture of anthrax used was obtained from the organs of a cow which had died of anthrax in the neighbourhood of one of the infected tanneries.

In the first experiment the spore-threads were treated as outlined in the process for tanning, beginning with the solution of fluid No. 1, and gradually increasing in strength until No. 7 was used. In the second experiment the threads were at once immersed into the strongest tanning fluid, No. 7. This was changed every week for the first month, and subsequently changed once a month. The fluids were always used in abundance, 100 cc. being the amount in which the threads were immersed. One thread from each of these was at first taken out each week, inoculated into bouillon, and the culture thus obtained inoculated into guinea-pigs. After the first month this was only done once a month. The threads have now been immersed for a period of 180 days. The growths

* The numbers of these tanning solutions indicate approximately the percentage of tannin contained in them—from 1 per cent. to 7 per cent. They are rated by means of the "barkometer," which is merely a specific-gravity float, much like the ordinary urinometer, the scale being graduated so as to show percentages of tannin in solution at 60°F. As tan-bark contains other principles besides tannin which are soluble in water, the instrument does not give the exact percentage of tannin, which is somewhat lower than indicated in the reading.

obtained at this date are perhaps a trifle less abundant than those obtained at the early stages of the experiment, and the virulence of the germ has been possibly lessened in a very slight degree, the last guinea-pigs inoculated living for about 36 hours, whereas in former inoculations death occurred in from 24 to 26 hours. However, I unfortunately neglected to weigh accurately the animals used, and the attenuation of virulence is so slight as to have very little practical value. Yet from these experiments we may conclude that the process of tanning, as ordinarily carried out, does not in any way protect the operatives from infection by the anthrax germ—so far, at least, as regards its effect on the viability and virulence of the germ, though it is possible that the combination of the tannin with the albumen in the hide may "fix" the germs so that they are less liable to become detached from the hide.

Since the preparation of the above the experiment has been continued; so that at the present time 224 days, or more than twice the number required for tanning, have elapsed since the spore-threads were first put into the tanning solutions. That the relative scantiness of growth in cultures mentioned has not been entirely, if at all, due to destruction of the spores, has been shown by the fact that I have several times obtained numerous colonies of anthrax on plates made from a few drops of the sediment at the bottom of the flask, proving that a large number of the spores were washed out of the threads, but even in this entirely unprotected condition they do not appear to have been injured to any appreciable extent. The last guinea-pigs inoculated weighed 470 and 500 grammes, and died in 28 and 24 hours respectively. The virulence of these cultures was fully equal to that of the original, and at no time has there appeared to be any marked difference in the virulence of the cultures in the two experiments, though in No. 2 the strongest solution has been used from the outset.

These experiments, together with the cases mentioned, illustrate the necessity of some method of properly disinfecting hides brought from foreign countries before allowing them to be sent to our tanneries, and this disinfection should preferably be done at the port of shipment. Unfortunately no method has yet been devised for the disinfection of hides which does not injure them for subsequent use, though attempts have been made by the Federal Government to plan and enforce such method. In this connection much is to be hoped for from some one of the several methods recently

devised for tanning by the use of formalin, which is unquestionably one of the most powerful germicides.

In some experiments by myself a few years ago, it was found that anthrax-spores on silk threads were killed by a momentary immersion into formalin, and it is hard to see how they could escape destruction during a prolonged immersion of a hide in a solution of this substance. Any method of disinfection by this agent should be capable of destroying the most resistant spores. It is stated by some authorities that anthrax spores from different sources have varying degrees of resistance to destructive agents, which may be regarded as a rare peculiarity. Thus von Esmarch found that anthrax-spores, according to their origin, required a five per cent. solution of carbolic acid for at least two days, and in some cases even so long as 40 days, for their destruction. Some anthrax-spores will resist a one per cent. aqueous solution of corrosive sublimate as much as three days, though their virulence is destroyed in 20 hours. They will occasionally live in water or steam at 100° C. for so long as 12 minutes, and not infrequently so long as five minutes. A dry heat of 140° C. for at least one hour is required for their certain destruction.

It is probable also that the resistance of different spore-cultures depends somewhat on the culture-media on which these cultures are grown, on the temperature at which the formation of the spores takes place, and on their age. Frankland has shown that spores formed at 20° C. are more resistant to the action of light than those formed at the incubator temperature. Dry spores seem to be practically indestructible under ordinary circumstances, and may be kept for years without any deterioration of their virulence or power of growth. It is certain also that the hide of an animal dying of anthrax will contain the spores of the germ and not simply the vegetative form which is comparatively easily killed, for it must be remembered that the flaying of the animal gives free access of the oxygen of the air to the germs contained in the capillaries of the skin and subcutaneous cellular tissues, the one condition so necessary to the formation of the spores. Animals usually die of anthrax during warm seasons, so that the temperature necessary for the formation of spores is also usually to be had under these circumstances.

The important points for the protection of our cattle industry and of the operatives in tanneries are then as follows:

First: The discovery of an economic and simple method of thoroughly disinfecting hides without injury.

Second: A more reliable method of obtaining reports from countries which export hides.

Third: A process of tanning which will in itself destroy the spores of the anthrax-bacillus.

EXTRACTS FROM A CAMPAIGN OF EDUCATION.*

BY DR. J. M. EMMERT, M.D., ATLANTIC, IA., EX-MEMBER OF STATE BOARD OF HEALTH.

WE have heard much the last few years of Campaigns of Education. The great political battle of 1896 was called a campaign of education, because almost every man, woman and child in this great country was studying the money question, and the most learned men on both sides of the question were employed to prepare circulars, leaflets, newspaper and magazine articles, which were scattered abroad by the million.

The question of slavery was settled by force of arms, but only after the people had been aroused by the teachings of Wendell Phillips, Lloyd Garrison, and Horace Greeley.

Notwithstanding the newspaper campaigns of these men, and the eloquent addresses in the halls of Congress, the one quiet, pathetic, earnest and truthful appeal, made by Harriet Beecher Stowe through "Uncle Tom's Cabin," was the "still small voice" that aroused the people to action, and slavery went down before its mighty influence.

Thus it is that in all reforms it is the quiet but persistent work by those who are devoted to the cause that will win in the end.

I have selected this subject for your consideration to-night because I regard you as a band of educated and scientific men, who are engaged in the great warfare against filth and disease, and preach the gospel of cleanliness and happiness, and I want to welcome you as co-workers in this field with the profession to which I have the honour to belong.

The day of the "horse doctor" is past and gone, and the educated veterinarian has taken his place, full of enthusiasm, zeal, and a desire to understand the underlying causes of disease, and, if possible, to remove them.

He is satisfied with nothing but a scientific explanation of all questions pertaining to the profession. I am rejoiced to find so many of the profession not only interested in sanitary

* Read before the Iowa State Veterinary Medical Association.

questions, but practical sanitarians. As the people become educated to your worth, not only as veterinarians, but as sanitarians, your sphere of usefulness will extend.

You are presumed to understand the diseases of animals, both alive and dead, and able to point out and explain the difference between diseased and healthy food products, especially meat and milk. This being the case, no man in the community can be of as much benefit upon the local boards of health as the learned veterinarian, and I think the time is not far distant, or at least I hope so, when every slaughter house, meat market, dairy, or other place where food products are brought and sold, will be inspected and under the supervision of the local boards of health. When that time does come, gentlemen, you will be called upon for your services, and the people will demand that they have the benefit of your knowledge. In fact, it is your duty as well as mine to assist in bringing about this happy result. You understand the dangers of eating meat infected by trichina and actinomycosis, or drinking milk infected by tubercular bacilli; along with the medical profession and with sanitarians it is your privilege as well as duty to be teachers, leaders, and educators in this great work. The field is not only great, but the work is grand.

No man can fill the niche in the world that God intended he should fill, and live for himself alone. What we do to elevate and make humanity better, place our fellow man upon a higher plane of usefulness, make him happier, wiser, and more prosperous, will alone secure the greatest happiness for ourselves and make us feel that we have not lived in vain.

You will be confronted by many difficulties and all kinds of obstructions to be overcome in your fight against ignorance, prejudice, sordid and avaricious desire to accumulate wealth. All these obstacles must be removed or overcome before the people will understand and appreciate the fact that they have an abiding interest in the fight against filth and disease.

Your fight is in the interest of humanity; not of life alone, but the protection and preservation of property as well. I will not attempt to go into statistics to any extent to prove any assertion I may make, but suffice it to say that one-half of the deaths are caused by contagious diseases, all of which are preventable diseases and should be eradicated, and would be if proper sanitary laws were upon our statute books and heroically enforced.

The existence and spread of typhoid fever, scarlet fever, diphtheria, tuberculosis, hog-cholera, trichina, and actinomycosis are *primâ-facie* evidence of our ignorance or criminal

negligence, and an insult to our higher civilisation. The loss of life and destruction of property by these preventable diseases are beyond our conception unless studied in the light of modern scientific statistics. Take as an illustration tuberculosis or the great "White Plague," as it is sometimes called. One out of every seven deaths throughout the world is caused by tuberculosis. Iowa contributes nine deaths every day, 3,000 every year; the United States contributes 150,000, and the whole world 5,000,000 per year.

Contemplate these figures for a moment, then ask yourself why the people are not aroused to the dangers that surround them and demand that our lawmakers, both State and national, shall enact laws to stamp out this disease, or at least prevent its fearful ravages. If a case of small-pox is reported in this or adjoining States, the State Board of Health at once makes preparations to prevent its spread. Newspapers take up the cry of danger, and the people become excited and demand that the local boards of health be doubly vigilant.

Last winter the House of Representatives of this State sent Dr. Kennedy to the northern part of this State to investigate a case of leprosy, and see what was necessary to protect the State from its ravages. What a farce! This is literally straining at a gnat and swallowing a camel. More people die of tuberculosis in one month than have died of small-pox in the last ten years. The almost complete stamping out of small-pox is a beautiful example and a scientific demonstration of what can be done by preventive medicine; and to-day, if the laws throughout the united world compelling the vaccination of every child at a certain age were enforced, small-pox would be in ten years a lost disease.

Now, in my judgment tuberculosis is just as easily stamped out as small-pox. It may take generations to do it, but with proper legislation, and its complete enforcement throughout the world—I mean a concerted action by all the powers of the world—will reduce the mortality due to the disease to a minimum, if not entirely wipe it out. But to do this we must start out right, we must understand thoroughly the etiology of the disease, its natural history, how it spreads, etc.

Every case of tuberculosis comes from some other case of tuberculosis in either man or beast.

The township trustees, and city and corporation councils, as boards of health, led by an intelligent veterinarian, should have charge of all suspicious animals, and not only order their destruction and final cremation, but do it themselves or have an officer delegated for this work.

It is not sufficient to destroy our diseased stock; we must have some means by which we can keep diseased stock out of the State. You can't destroy a stream by damming it up—destroy the source and the stream will dry up. So it is with tuberculosis and other contagious diseases among stock; destroy the disease at home, and keep outside diseased stock from coming in, and our herds will soon be free from contagious disease. The cattle and hog men tell me this kind of legislation would ruin their business. You will find that this argument is used alone by the middlemen, the men who buy and ship, and care but little whether the stock is healthy or diseased.

But take the farmers and stock raisers, who take pride in their business, and who are interested in the growth and development of our beautiful State, and I think you will find them almost to a man interested in this subject, and willing and anxious to do everything possible to stamp out contagious disease, and thereby give protection to the people and property of the State.

THE PART PLAYED BY INGESTION IN THE PROPAGATION OF TUBERCULOSIS. THE SUPPOSED DANGERS OF TUBERCULOUS MEAT.

THE ingestion of food contaminated by tuberculous virus certainly does not cause the disease even in the most sensitive animals. When experiments are made on subjects endowed with feeble receptivity, such as animals of the ovine species, ingestion, even though it be several times repeated, of tuberculous food may not produce the disease; I have, indeed, seen sheep remain unharmed after several ingestions of virulent food, and in spite of the administration of great quantities of very active tuberculous matter. However, contamination of ovines through contaminated food is possible; but it happens with some frequency only in proportion as the virus ingested is abundant and ingestion of it several times repeated. The guinea-pig, rabbit, and swine, animals much more likely to infection, contract tuberculosis more readily and more often after the ingestion; but in their case, too, it is necessary for production of infection that the virus ingested be sufficiently plentiful, or that ingestion of it be several times repeated; such I have found to be the case from the experiments I have made, and such has been the result of the experiments which have preceded mine.

On the 16th November, 1895, twenty adult guinea-pigs, of approximately the same weight, which had been kept fasting for twenty-four hours previously, were experimented on, and divided into equal lots. Two tuberculous emulsions were prepared, one with 40 grammes of rabbit-lesions, the other with 40 grammes of pleural cow-lesions; green collets, cut up into small pieces and smeared over with the tuberculous emulsions, were served up to them in plates; and thus one lot received rabbit virus and the other the cow virus; the whole of the food was ingested. The twenty subjects got for food only green collets on the 16th, 17th, and 18th November, after which they were put upon their ordinary diet again. On the 23rd November, each lot, after again fasting twenty-four hours, received a second contaminated meal, similar in every detail to the first; they consumed it all, and then were relegated to their ordinary diet. The lesions employed for these two meals were unequally virulent; but the less active virus, that of the cow, gave tuberculosis to the guinea-pigs and rabbits which were inoculated with it. The twenty guinea-pigs, who had thus eaten (with an interval of seven days) two tuberculous meals, were killed on the 11th February, 1896, or 87 days after the first meal and 80 days after the second. Not one was found tuberculous in the lot which had ingested the cow-virus; there were three tuberculous in the other lot. The same experiment having been repeated under the same conditions, and with the same number of subjects, divided similarly into two lots, and each lot having received three meals instead of two, two tuberculous cases were found in the one lot and six in the other. I made numerous tentative experiments upon rabbits and guinea-pigs, subjecting them to tuberculous meals as has been described, and using directly bovine virus, or the virus of rabbits and guinea-pigs which had died of inoculated bovine tuberculosis. I thus obtained the following results: two successive meals with rabbit virus (40 grammes each time) made 5 out of 7 guinea-pigs tuberculous; a single meal with guinea-pig virus made 3 out of 6 tuberculous; 3 successive meals with cow virus (50 grammes each time) made 2 guinea-pigs out of 4 and 3 rabbits out of 6 tuberculous; a single meal with guinea-pig virus (20 grammes) made only 1 guinea-pig out of 8 tuberculous; a single meal with rabbit virus (50 grammes) made only 3 guinea-pigs out of 8 tuberculous, whilst the proportion after the ingestion of a second meal was 7 out of 8; a single meal plentifully contaminated with rabbit virus made 6 guinea-pigs out of 10

tuberculous; five successive meals with guinea-pig virus (60 grammes each time) infected 9 guinea-pigs out of 10. From these experiments made on rabbits and guinea-pigs we may therefore draw the following conclusions:—

I. Contagion by ingestion of food contaminated with tuberculous virus may take place more or less frequently according to the number of infected meals, and according to the quality and dose of the matter ingested.

II. Further, all things being equal, infection is produced less frequently with meals contaminated with virus taken directly from the bovine animal than with meals contaminated with virus taken from the rabbit or guinea-pig.

III. Ingestion of a weak dose of tuberculous matter, even if very active, infects rabbits and guinea-pigs only exceptionally, and a single meal plentifully contaminated infects scarcely more than one half of the experimental subjects.

IV. The number of the cases of infection increases with the number of contaminated meals; the more active and abundant the tuberculous matter ingested is, and the more frequently the meals are repeated, the more assured is the contagion.

It is well known that heating of the tuberculous virus between 60° and 80° may attenuate it more or less, to such a degree as to make it less and less dangerous for ingestion. The result of Bang's researches is that tuberculous milk heated for five minutes at 70° may be ingested without danger by rabbits and guinea-pigs, though it still causes a serious amount of disease when inoculated. My personal researches have led me to adopt a similar conclusion. I have, in fact, noted that the tuberculous virus, when weakened by a suitable heating, becomes less and less dangerous for the animals ingesting it. I have been able to administer, without danger, tuberculised milk heated six minutes at 70°—80°. But we must be on our guard in coming to a conclusion as to the inocuousness of milk thus treated: ingestion several times repeated might in certain cases cause tuberculosis, if one may judge from the following experiment: Two young piglings, three months old, received, from the 14th May to the 20th July, 1898, five contaminated meals, consisting each of two litres of milk, in which had been emulsioned each time 200 grammes of tuberculous lesions; the milk, after being tuberculised, had been afterwards heated up to 80°, and kept 20 minutes at this temperature. The two subjects were killed, one on the 7th September, the other on the 28th. Both presented tuberculous lesions in the ganglia of the throat, in the mesenteric ganglia, in the liver, in the lungs, and in the

bronchial ganglia. The milk, tuberculised as has been said, was, it is true, rich in virus, and the tuberculous matter had been only roughly triturated; but nevertheless the experiment certainly shows that tuberculous virus, when heated to 80°, is not sterilised (besides, inoculation of guinea-pig and rabbit gave positive results), and that repeated ingestion may produce tuberculosis.

All this, then, being granted, and it being shown that contagion by ingestion is often uncertain, that ingestion when not repeated may not cause disease in a more or less important part of the most sensitive subjects, that even repeated ingestion of feeble doses of virulent matter mixed with harmless food does not invariably cause tuberculosis, there is room for the question whether the measures prescribed in regard to meat coming from tuberculous animals have not been exaggerated and are not being still further exaggerated. We are no longer at the period when it was demanded that seizure should be made obligatory in all cases of tuberculosis, but could not our regulations be made a little milder? Evidently a real danger is inherent in the ingestion of food contaminated with tuberculous virus, especially when this virus is very abundant and very active, and especially when the introduction of the virulent matter is repeated at short intervals; evidently porcine, bovine, and other animals exposed to eating and drinking matters contaminated more or less plentifully with tuberculous virus become infected in a more or less considerable number, but does that imply that the consumption of the meat of tuberculous animals is very dangerous for man, who generally eats it after subjecting it to a more or less complete process of cooking? We must also remember, on the other hand, that this meat, when it is virulent (which is an exceptional case), is only so to a slight degree.

Like many others, I have been able to get some rare positive results by inoculating the muscular juice extracted by compression of tuberculous meat; but ingestion is incomparably less dangerous than inoculation. For myself, as I have already made known, I have on several occasions administered for several weeks on end tuberculous meat seized at the abattoirs without having ever succeeded in giving in this way the disease to the calf, pig, sheep, rabbit, or guinea-pig; and yet the muscles employed were virulent, their juice having caused, in a few rare cases, the disease after inoculation. As soon as I had had an opportunity of making known the results which I have just mentioned, I continued my researches on the

hurtfulness of tuberculous meat by using the guinea-pig as an experimental subject. The meat was either pressed or minced; with the juice or the mince (with the addition of bran and oats) patties were prepared, which the animals took readily; out of 80 guinea-pigs (distributed over four experiments) which thus received tuberculous meals (those of the first group twice, those of the second three times, those of the third four times, and those of the fourth five times), not one became tuberculous. I may therefore be allowed to conclude that ingestion of raw meat seized because of tuberculosis has very little danger in it, or even none at all. I believe, in consequence, that we shall have eventually to no longer seize the meat of tuberculous animals when there is no very marked leanness, and when, on the other hand, there are no serious muscular or osseous lesions.

To sum up. (*a.*) The transmission of tuberculosis may be produced as a result of ingestion, but it does not follow from this that it is fatal or even always easy when the animals ingest virulent matter; contagion by ingestion is produced more or less frequently according to the dose and the quality of the tuberculous matter ingested, and according to the number of infecting meals. (*b.*) In weak doses the most active tuberculous matter, when accidentally ingested, infects — and only in exceptional cases — only the most sensitive animals; and a single meal when plentifully contaminated scarcely affects more than half of the experimental subjects. (*c.*) The number of the cases of infection increases with the number of contaminated meals; the more active and abundant the tuberculous matter ingested is, and the more the meals are repeated, the more assured is the contagion. (*d.*) The tuberculous virus, when weakened by suitable heating, becomes less and less dangerous for the animals ingesting it; however, ingestion, if several times repeated, may in certain cases cause tuberculosis when the tuberculous matter, if simply weakened (heating at 70°—80°), is taken in considerable quantities. (*e.*) It being shown that contagion by ingestion is often uncertain, and that even repeated ingestion of weak doses of virulent matter does not invariably cause tuberculosis; it being granted, on the other hand, that the flesh of bovine animals attacked by tuberculosis is only occasionally virulent, and is so only in a very slight degree; it being admitted, finally, that ingestion of this meat absolutely raw is free from danger to sheep, calves, pigs, rabbits, and guinea-pigs, as my experiments show, we may, without causing

consumers to run any danger, decide not to seize the meat of tuberculous animals when there is no pronounced emaciation and when there are no serious muscular or osseous lesions.—M. V. GALTIER, in the *Journal Vétérinaire de Lyon.*

INFECTIOUS LIMPING IN LAMBS.

UNDER this title the author describes an affection which shows great analogy with the special disease described under the name of arthritis of newly-born lambs. In the majority of cases the animals become ill about eight days after birth, very rarely three weeks after. The symptoms were almost the same in all cases. Most frequently a limping of a fore-leg was observed; slight at first, this limping became so bad that at the end of a few hours the animal could scarcely rest on the limb. Frequently the limping would disappear from one limb, but show itself next day with equal intensity in another limb; at first the animals kept on sucking, but at the end of a few days they would become incapable of taking the teat any longer. Respiration was very much accelerated and laboured; the temperature rose very quickly to 41° and to 42·7°. At the same time general debility became accentuated to such a degree that the lambs could not get up; death supervened in the majority of cases in a state of profound exhaustion, sometimes accelerated by profuse diarrhœa. On investigation of the umbilical region, it was found that the umbilical vein was swollen; in some subjects it was as thick as a finger, and, on slight pressure, exuded a purulent and very fetid liquid. In spite of all the care taken with the mothers, as well as with the sick lambs, the latter succumbed, and showed on autopsy characteristic lesions of purulent infection, having for a starting-point the umbilical region: fibrino-purulent effusion in the peritoneum; purulent foci of varying size in all the parenchymata, especially in the liver; very intense phlebitis of the umbilical veins, etc. Although the author could not succeed in discovering during life a congestion at any point whatever of the limping limb, nor cause any sensibility by pressure of the different articulations, he believed that he was face to face with an infection of new-born lambs by means of the umbilical cord; he therefore thought that he would succeed in stopping further development of the disease by disinfection of locales and by very minute antiseptic treatment of the umbilical region. He was,

however, deceived in his hopes, for, in spite of all, the disease broke out again in two consecutive years, with manifestations almost analogous to those just mentioned. The author, having discovered on autopsy of several lambs that the umbilical region was exempt from any lesion whatsoever, thinks that in these subjects infection had an intra-uterine cause.—KONDELKA in the *Oesterreichische Monatschrift.*

Editorial.

THE APPEAL FOR AID.

THE editor of our contemporary, *The Veterinary Record*, in an editorial of 17th June, discussing the pressing question of Meat Inspectorships, asks his fellow veterinarians to aid him with their advice. We gladly respond to his appeal, at the risk of being thought monotonous. We take as our basis the article which he has written.

The editor says: "Some day, we believe, the people will awaken to the evils which result from want of inspection. . . . When that time comes, experts will be appointed to inspect meat, and, if justice be done, the inspectors will be veterinary surgeons—that is, the men most fitted for the work." Why does our friend say "some day"? The people *have* awakened—are very wide awake, and are clamouring for protection, as is shown by the great number of municipal Bills now before Parliament. It is only the veterinary profession which is asleep, and which, in the enjoyment of delusive slumber, is allowing the opportunity of strengthening its position and enriching its members to escape. "Resist beginnings," says the old proverb, but *The Veterinary Record* scarcely seems to understand the significance of the phrase. "We have a sphere of our own—the health of the domestic animals; in this we claim to be eminently most fit, and we desire to do any work which consists of the inspection of living animals or animal products." But is not the flesh of animals their most important product? Why not, then, assert our natural rights vigorously and without hesitation? Why allow morbid scruples to stand in the way? And why not extend our sphere to its full limits? "The veterinarian has no desire to conflict with, or encroach upon, the duties of the medical officer." Of course not; who says he has? It is the old story of *meum* and *tuum*, but the veterinarian must

not be deterred by girlish hesitancy; he must claim the *meum* and resist any attempts to deprive him of it, and that quickly and decisively. "Slowly and gradually authorities are recognising our claims." And we are humbly waiting, hat in hand, till the unwieldy public turns its sleepy eyes in our direction! Is this conduct worthy of Englishmen, worthy of the conquerors of the world? "The most notable of medical officers do not ignore us, but seek our assistance and co-operation." Very kind and very complimentary; they call us in when they are in difficulties—at least the most notable, that is, the strongest and most independent do so, but what of the others, the majority? "Still there are difficulties." The editor sees a lion in his path, and a very big and formidable lion, which really makes him turn tail. "We very distinctly object to the position of being called in merely as assistants to the M. O. H. when he meets with a case in which he requires skill that he does not possess." Here the editor's bland complacency at being "recognised" by those superior persons the Medical Officers deserts him, and he for a moment realises the serious nature of the matter with which he is dealing. "We hold that . . . there is room for us as separate officers, independent of other officials, and responsible only to the local authority." We should think there was! Not only room but absolute necessity. In passing, we would remind the editor of the *Record* that to play second fiddle to a Medical Officer of Health, unless we ourselves hold a distinct and recognised official position, is no pleasant or honourable task. Does anyone think that the Medical Officer, when he avails himself of our services, proclaims to the public his indebtedness to us? Certainly not, nor is it to be expected. The M. O. H. has probably a hard enough task to perform in holding his own ground, and it is very unlikely that he will share the honour with a veterinary colleague, however much he may be indebted to him for advice or information. He argues, quite naturally, that if he glorifies his veterinary friend he may some day have to share the guineas with him. On the other hand, we may be excused if we say that we are tired of the prompter's part: we should like to have our turn on the stage, and we rather fancy we should cut a good figure there.

We now come to that extremely unpleasant and unsavoury business, the proposed scheme of the Sanitary Institute. We can scarcely restrain our indignation when writing on this matter—our indignation which grows stronger and hotter every day. It seems to us a deliberate insult on the part of

the Sanitary Institute to ignore the Royal College of Veterinary Surgeons, a recognised official body holding a Royal Charter, when the Institute wishes help in the performance of its functions. But this is not the whole grievance, nor the worst part of it. Not content with ignoring us in our corporate and official capacity, the Institute goes to one individual after another of our body, and asks him to, practically, desert the veterinary camp, prove a traitor to his fellows and go over to the enemy. We trust there are no traitors amongst us, and that the blandishments of the Institute will be thrown away. But it is no easy or simple matter to resist such blandishments. A semi-official body has such enormous resources at its back that it may easily tempt the struggling practitioner to regard his scruples as extravagant or visionary, and succumb to the love of ease that is inherent in all human nature. We do not, of course, for one moment insinuate base motives on the part of an honourable Institute; such a thing is preposterous and incredible in this country. But we do say that the Institute, with its lordly indifference to minor mortals, is producing this impression on the public, and is inadvertently demoralising, or threatening to demoralise, our profession. If there is a Jonah amongst us he must be thrown overboard at once; in this way only can we preserve our honour and compel recognition from the Government. But there must be no faltering. The *Record* says: "The Sanitary Institute are working out a scheme for teaching and examining sanitary inspectors on the special subject of meat inspection. The sanitary inspector will, of course, never attain to the standard of knowledge possessed by a member of the R.C.V.S., but he will be made much more efficient and useful." Could anything more fatuous be written? This abortive, nondescript inspector, begotten by the Sanitary Institute, is to be "of course" inferior to us, and yet "more efficient and useful"! Does the *Record* really mean that men who start from a lower plane are going to distance us? Ought we not, in vindication of our honour, to make such a state of things impossible? Let us state the argument simply. The care of the health of our domestic animals is the province of the veterinarian. He has studied the nature and constitution of these animals and the conditions which make for health or disease. He is therefore the man logically destined to become the most suitable guide for his fellow-men when they wish to discern between the wholesome and the unwholesome in the way of flesh-food. If any technicalities are necessary he can easily

acquire a knowledge of them by reason of his early training. (If outsiders can acquire this knowledge more easily than our young men, then it follows that our whole system of veterinary teaching is false and worthless; but this we utterly deny.) It may be that the richer amongst our veterinary surgeons disdain the paltry salaries frequently offered for inspectorships: such men need not compete. But let them take care that the inspectorships are reserved for their younger or humbler professional brethren, who do not despise the small salary so long as it brings with it a chance of extending their studies and their acquaintance with men and things. Some day all private slaughter-houses will be abolished, and public abattoirs will be established in every town and village in the country. It will be made, we expect, a criminal offence to slaughter animals for food elsewhere than in such abattoirs. Then, at last, the task of the inspector will be more honourable, better paid, and easier. But if the present apathy continues, what will the state of things then be? The "of course inferior" officers of the Institute, if produced now, will be in possession of the inspectorships, and they will naturally enjoy the increased emoluments. The traditions of veterinary teaching will have become very dim—if, indeed, they shall not have entirely disappeared. Our veterinarians will find that the field open to their sons is wofully narrowed and deplorably barren, and that competition has become not only keen but degrading. They will find themselves, when they appear as witnesses in the law courts, confronted by a half-educated inspector who holds the diploma of the Sanitary Institute, and they will be told that this person is their official superior. He holds a Government diploma entitling him to inspect anything and everything, whilst they, after years and years of patient study, have only obtained a licence to practise veterinary medicine and surgery.

We trust that the profession will not adopt as its motto "After me the deluge"—which is, really, the philosophy of the devil. The man who has no regard for the younger generation is a worthless and dangerous citizen, and, like a diseased member or a decayed branch, incapable of transmitting the sap of life, ought to be removed from the body politic or the body scientific.

Legal News.

R.N.—W. WILLIAMS & SON *v.* WILLIAM D. FAIRBAIRN.

THE Division to-day disposed of a reclaiming note against a judgment of Lord Pearson in an application by W. Williams & Son, of the New Veterinary College, Edinburgh, against William Douglas Fairbairn, veterinary surgeon, Edinburgh, in which interdict was asked against the respondent practising as a veterinary surgeon or farrier in the employment of Colin C. Baird & Son at any time prior to 29th June, 1900, or from starting business in Edinburgh as a veterinary surgeon or farrier by himself or along with any other person prior to June, 1900. The complainers stated that for several years prior to 29th June, 1895, the respondent carried on a business as a veterinary surgeon and farrier in Edinburgh, which business he has assigned to the complainers in consideration of £250, and he further bound himself "not to practise or start business in Edinburgh as a veterinary surgeon or farrier for the space of five years from 29th June, 1895." The respondent was said to have commenced to practise with Baird & Son, and this the complainers alleged was a breach of the agreement. In answers the respondent denied that his remuneration consists in whole or in part of a share of the profits of the business in which he was engaged. It was also denied that the respondent was canvassing his old customers and getting orders. He was now acting as a salaried assistant, and the agreement was not intended to prevent him from taking such work. Lord Pearson in the Bill Chamber passed the note and refused interim interdict. To-day the Division recalled the judgment of the Lord Ordinary, and granted interim interdict on the complainers finding caution, holding that there was no doubt the respondent was acting as a veterinary surgeon.

Counsel for the complainers and reclaimers: Mr. Balfour, Q.C., and Mr. Chree. Agents: Gordon, Petrie, & Shand, S.S.C.

Counsel for the respondent: Mr. Campbell, Q.C., and Mr. Wilson. Agent: Hugh Martin, S.S.C.—*Scotsman*, 19th June, 1899.

Reviews.

AIDS TO THE ANALYSIS OF FOOD AND DRUGS, by T. H. PEARMAIN, Senior Analytical Assistant to the Society of Apothecaries, London, and C. G. MOOR, M.A., F.C.S., F.I.E., etc. Second Edition. London. Messrs. Bailliere, Tindall & Cox. 1899.

This book, comprising some 200 pages, is of the utmost value to those who have to work under the Food and Drugs Act. The first article, and the one of the greatest importance to Veterinarians, is "Milk." The various methods of examining it, not only for its quality, but for its adulterations and additions, are most exhaustively and lucidly dealt with; there is also a most useful article on "Disinfectants," and we have much pleasure in recommending this book to our readers.

THE DOG: ITS EXTERNAL AND INTERNAL ORGANISATION. Edited by A. C. PIESSE, M.R.C.V.S. London: George Philip & Son. 3s. 6d. nett.

Messrs. Philip's series of scientific picture-books, dealing with the structure of domestic animals, is rapidly approaching completion. The latest member of the series is intended to show the organisation of the dog.

Unfortunately, in this series admirable plates have been wedded to indifferent letterpress. The present work is no exception to the rule. The plates are excellent so far as they go. But the first section of the work consists of descriptions which, in some places, border on the inane. It is obvious that the details are intended to fit the comprehension of the lay reader. We very much doubt if they will do so. In many places either too much or too little is said. Some passages bring back to memory the class of statement, made ponderous with much wisdom, that was hurled at us from the reading books of childhood's days. For example: "The voice of the dog is called barking. If forced, the voice sounds like howling. The dog cannot climb, in the real sense of the word, but can run very quickly."

The anatomical description contains frequent errors and ambiguities. The nomenclature used is largely original and ought to be interesting to the forthcoming Baden-Baden Congress.

In spite of its imperfections, which are many, we can recommend the work to the notice of veterinary students and practitioners on account of the plates alone.

In reviewing a former number of the series we pointed out the frailty of the plates, and suggested that if calico or some similar material was used the life of the book would be considerably prolonged. We take the liberty of again making the suggestion to the publishers, who are to be commended for the endeavour they have made to produce anatomical synopses which may be useful to the veterinary profession.

PATHOLOGY OF THE DOMESTICATED ANIMALS (Urinary Apparatus and Skin), with 94 figures, by C. CADEAC, Professor of Clinical Surgery at the Veterinary College, Lyons. Price five francs. (J. B. Ballière et Fils.)

Professor Cadeac continues with great regularity the publication of his "Pathology of the Domesticated Animals." The first three treated of the diseases of the alimentary canal; the fourth with the diseases of the respiratory system; the fifth with the circulatory system; the sixth with the blood and kidneys.

The seventh volume, now before us, is concerned with the diseases of the urinary apparatus (bladder and kidneys) and the diseases of the skin, the latter including a most interesting series of chapters on worm, arachnid, and insect parasites.

Professor Cadeac's method is to deal with the diseases organ by organ, noting the pathological changes each undergoes as the result of attack: *e.g.*, in the case of scab there is first a general notice of the disease, then details of the genera of scab mites, and under each genus the various animals attacked are worked through carefully and usefully.

This excellent book can be cordially recommended to veterinary surgeons and all students who desire an interesting and trustworthy guide to that most important subject, the pathology of the domesticated animals.

NOTICE.

MESSRS. C. J. HEWLETT AND SON will send gratis to any member of the veterinary profession, blank temperature and descriptive charts for use in cases which have to be carefully recorded, such as those in which tuberculin or mallein is being used. These charts are most convenient for practitioners, and we recommend our readers to apply for some.

Proceedings of the Royal College of Veterinary Surgeons and Veterinary Medical Societies, etc.

ROYAL COLLEGE OF VETERINARY SURGEONS.

THE 56th annual general meeting of members was held at the College, 10, Red Lion Square, W.C., on Wednesday morning, June 7th. Mr. A. W. Mason, president, occupied the chair. The following members were present: General Sir Frederick Fitz-Wygram, Col. Lambert, Vet.-Major Phillips, Profs. Macqueen, Penberthy and Shave, Messrs. Barrett, Cope, Elphick, Hartley, Lawson, Trigger, Wartnaby, Wragg, Hunting, Rutherford, Rowe, H. J. Dawes, Blakeway, Burrell, Wooff, Jacobs, Anderson, Shipley, Wilson, McCormack, Hopkin, Lomas, Woods, Smith, Roberts, Banham, Moore, Woodger, Dawson, Arkcoll, Scott, Geo. Thatcher (solicitor) and A. W. Hill (Secretary).

The notice convening the meeting having been read by the secretary, on the motion of Mr. Wragg, seconded by Mr. Trigger, the minutes of the last annual general meeting were taken as read and confirmed.

The Election of Council.

The PRESIDENT: Gentlemen, we now come to the election of the members of council. As you know, this is somewhat of an extraordinary year, as there has been no election. There are eight nominations, and there are eight vacancies. Therefore the eight nominated gentlemen are the elected members. The names are: Messrs. W. F. Barrett, W. T. J. Bower, J. R. U. Dewar, C. Hartley, A. Lawson, S. Locke, James McCall, and W. Pritchard.

Annual Report and Balance Sheet.

The PRESIDENT: I now beg to move "That the fifty-sixth annual report of the Royal College of Veterinary Surgeons be adopted."

Mr. F. W. WRAGG: I beg to second that.

The CHAIRMAN: The annual report is now open for discussion.

Colonel LAMBERT: As you all know, we usually have an election for members of council about this time, and this year there were eight vacancies and only eight candidates. Although that is quite legal, it is a very curious election. I think there might be some means of letting the profession know that the number of candidates for the vacancies is the same. There might have been fewer candidates, and then I do not know what would have become of the election. Should not the Secretary be empowered at a certain time before the election to send a list of the candidates before the voting begins? I know that there is a note at the bottom of the notice saying that there will be no voting, but I think that was quite an anomaly. I should be glad if some one would make a suggestion about it, because it appears to be a very strange thing to elect a number of gentlemen to a very important office in the profession without any contest or any voting. They are supposed to be elected by votes.

Professor MACQUEEN: I should like to ask a question arising out of the annual report, that part of it belonging to the report of the Registration Committee. It appears that the council found it necessary to remove from the register the name of a member of the college, and the question I desire to ask is this—How are the members of the profession to safeguard themselves against communications with this disgraced member if his name does not appear? It may be, of course, that his name is well-known to members

of council, but my point is that it is not well-known to the members of the profession, and although his name may no longer appear on the register of members it is difficult for me to understand how the other members of the profession, who are apparently warned by the action of the council not to associate with this disgraced member, are to conduct themselves in case they should meet him. In view of the possible occurrence of similar cases, it seems to me that it would be worthy of consideration whether some better method might not be adopted for warning the profession against the recent member who has been struck off. But there is a further question I should like to ask, also arising from this Registration Committee's report. What is the kind of conduct, or what is the measure, that is necessary to remove the name of a member from the register? Apparently advertising is serious enough, but one would have thought that bribery was more serious. I should like to know if the council have decided yet upon the exact condition which renders a member unfitted to remain on the register.

Major PHILLIPS: It does not appear to me at all advisable that a man's faults should be blazed out into the world. I think that we ought to have confidence in the council, and let the matter rest with the council. There is not one of us here, I take it, who would like all their inner life to be blazed abroad to the world. I think for a man to have his name removed from the register is sufficient punishment for any transgression. I think it would be better to let the matter rest.

Mr. WOOFF: I think the last speaker is taking a very lenient view. If a man thinks so little of his honour as to give away his profession by fraud, and to drag his profession through the dirt and be convicted, as a member of our profession should he be in any way considered? I say "no." If you are lenient to offenders they will go on doing what they are doing now. They will say: "It does not matter what we do, nobody ever knows; and at the worst we can only be struck off the register. What do we care? We have enough to live on, and there are other means of getting a living." There is one thing that I should like to say in reference to the election of council. I believe the profession are bound to elect every member proposed as there were only eight nominated. One of them, Mr. Barrett, is a barrister, of whom we are very proud, but he is debarred from practising in the veterinary profession by the laws of the legal society. The question is whether we want practitioners on our council or whether we want our council to be a haven for retired men. We want practitioners on the council, men who work every day amongst other practitioners, and they are the men to form bye-laws. If we want to put down advertising we want an example from the council. We do not want men on the council who advertise. Here is an advertisement of an embrocation 1s. And included in this list are soaps, hair brushes, emery-paper, knives, and boot polishes. When members of the profession pick up this grocer's catalogue and see a member of the council advertising his wares in this manner, they say, "Why should we not do the same? What is good for the goose is good for the gander."

The speaker then handed the list to the president.

The PRESIDENT: If that is the only proof you have I object to your coupling Mr. Barrett's name with it, especially as he is not present.

Major PHILLIPS: May I ask a question? In a case of advertising by a member of council, is his case dealt with in the same way as that of an ordinary member of the profession?

The PRESIDENT: Yes. Particulars simply have to be forwarded to the Registration Committee.

Mr. ANDERSON: Referring to the member who has been struck off the register, I agree with Professor Macqueen that his name should be published in all the veterinary journals in order to let the different members of the college,

centred all over the country, know who he is. I also go further than that. I would follow the lead of the medical profession and the legal profession, as we are trying to do, and I would say that his name should be advertised in the public papers as being struck off the register. We follow those bodies religiously—or try to do so—as regards advertising, and why not in this? Why should this man's name only be known in the council? We are kept entirely in the dark as to the doings of the council. We get a short report like this, which would take about half-an-hour to write. We have no chance of speaking at any other time during the year; so I think, Mr. President, we are entitled to some consideration as practitioners. Another thing I should like to know is whether this alteration of bye-law 113 is legal or not. I am told it is not. I have consulted a legal gentleman about it and he says it is not legal, and that it will not hold water at all. Supposing the council were to have a man up before them for advertising, or some editor writing something about him in the papers, and this man says, "I do not withdraw anything; I shall not stop anything: you can do what you like." Supposing the council struck him off the register, I think that member of the profession has a splendid claim against the R.C.V.S. which might land them in very heavy expenses; because I am told that the bye-law is not legal. These bye-laws are altered at your will. They never come before any legal tribunal. We go by the Act of Parliament, not by the alteration of bye-laws. I think that is a most dangerous habit for the Registration Committee to get into, to recommend the council to alter the bye-law so as to make the bye-laws legal, and that any members of the council can be struck off. I must say I do not congratulate the profession on this annual report. There is another thing I should like to know. I see the legal expenses are £162. I notice that you had one conviction with costs against an unqualified man for practising. I hope that conviction did not cost that amount of money, £162. I should like to know how these legal expenses are made up, whether they are for writing letters to members of the college requesting them to desist from doing certain things, from putting simple advertisements in local papers, and sending out a card with the name and M.R.C.V.S., and the address. Is that lowering the profession? I should say certainly not, and I fail to see how any number of people in a profession like ours can prove how it does lower the status of the profession. We want to raise the status of the profession. but not at the expense of our pockets. Our incomes are being decreased by allowing quackery to go on. It is very rampant at present, and there is no one to stop it. We do not want to turn informers, but why not have a protection society and appoint an officer to obtain cases, as in the Leeds case? They got that conviction quite easily. Why not continue, and stop farriers from blistering horses, chemists from selling medicines, and giving advice as to the disease of horses, and charging 6s. a dozen for drinks? How are we to live if chemists are allowed to go on like that? I think the council would do a great deal more good by trying to put down quackery instead of molesting the members of the college.

Mr. WOOFF: Is the register open for the general inspection of the members? If so, it would be easy for any member of the profession, if he so desires, to see the name that has been removed. I should like to know if every member can inspect that register when he likes, at any proper time?

Mr. W. HUNTING: There are just two or three points that I should like to refer to in this report. On page 2 a bye-law is quoted. It seems to me that the punctuation of that bye-law is wrong, and that the error of punctuation has led to a great deal of misunderstanding about it. To my mind, the sentence which governs the whole of that bye-law is to be found in the fifth line, "relating to their professional attainments, or abilities, or charges, or in respect of medicines or appliances prepared or sold by them." That seems

to me to qualify the whole bye-law. I believe also if that qualification were strictly stuck to any advertisement not embraced in those words would be perfectly harmless and might be let alone. For instance, I see no harm in a veterinary surgeon advertising that he was married yesterday, or some time after that event advertising that there had been an increase in the family. I see no harm in a young man starting a practice and putting a note in his local paper with his name and address "veterinary surgeon." But I see a great deal of harm if he breaks any of the regulations of this clause which are fairly described as "relating to their professional attainments, or abilities, or charges, or in respect of medicines or appliances prepared or sold by them." If that sentence were put in brackets, or if it were lifted and put after the words "veterinary surgeons," on the top line, it would make the whole thing sensible and clear, and would save a lot of men a great deal of anxiety in starting their practice. Then I come to the next paragraph, on the professional examinations. I see there that in the three years' course there were at the date of the preparation of this report 63 rejected men. I believe a resolution was passed by the council in reference to these men some time ago, but I do not think that resolution has ever had the force of a bye-law, and I do not think the council can prevent these men from continuing to be examined. But I would suggest that the council might give fair notice and include that notice in a bye-law fixing a time after which the three years' course men might find some other profession more suitable to their intelligence. On page four there is a reference to the Parliamentary Committee. The Parliamentary Committee of the Council of the R.C.V.S. has generally been an august body which did nothing. All the men of the highest social rank on the council struggled their very hardest to get on the Parliamentary Committee. If there was half a chance of meeting a duke, the Parliamentary Committee turned up in force. The work of the Parliamentary Committee has apparently been very easy, unless they have something up their sleeve, unless they have some sort of appendix to the report to come out later. They tell us what we know perfectly well before, that there was a bill in the House of Lords referring to medical men, and which has not included veterinary surgeons. It is a matter of most perfect indifference. You can get a trading company to injure a pharmaceutical chemist who has passed a good examination, and a trading company can start putting up prescriptions and sell medicines, and they cannot be stopped. The pharmaceutical chemist is not protected by this bill. The veterinary sugeon need not trouble himself at all about company trading, for as far as I can see you could not own such a company without a veterinary surgeon, and we should very soon stop the gentleman who assisted for "covering." But what I cannot understand is that no reference is made to some other bills of the greatest interest and importance. We were told there were about 80 private bills referring to public health, tuberculosis, meat and dairy inspection. Surely some reference to them would have been right and proper, or is it a fact that the council has ignored these bills and done nothing in the matter? We have heard a good deal about the Leeds Bill, but there is no reference to it in the report. I am perfectly certain that the profession would have been only too pleased to hear that the opinion of the council had been so great that the Government had to put to right some of the anomalies proposed to be put in this Bill. But there is no reference in it. The Parliamentary Committee are probably much too big people to pay attention to any such little matters in the report.

Colonel LAMBERT: Am I in order in asking that the solicitor should be allowed to give us his opinion on this criticism of Mr. Hunting, whether his remarks are correct, and that bye-law 113 is futile. Would Mr. Hunting please state whether he says that this bye-law is necessary or is not, and whether it is valid?

Mr. HUNTING: I believe the bye-law is very necessary. At present it is confused and not clear, but if you shift the paragraph relating to their "professional attainments, or abilities, or charges, or in respect of medicines or appliances prepared or sold by them," so that it reads in after the words "veterinary surgeon," "that advertising by veterinary surgeons relating to their professional attainments, or abilities," and so on, so that the advertisement is qualified—the kind of advertisement is then clearly shown to which the council objects.

Col. LAMBERT: May I ask the solicitor to kindly give us his opinion on the point?

The PRESIDENT: I think it is quite unnecessary to ask the solicitor to give us his opinion on this point, especially at a meeting like this. We are here to discuss the report, and I do not think this is a proper place to ask a solicitor to give his rendering of the bye-law, and it is also quite unnecesary.

Mr. BANHAM: With regard to this Bye-law 113, I think there are lots of other subjects which might far better be included in it than simply public advertising. I think public advertising in our profession is perhaps the most gentlemanly, the most honourable, and the best way of bringing oneself before the public, because you may be quite sure that a man will not do anything very dishonourable if he is going to put it in the public press. But there are lots of other things which might be attended to, and surely this public advertising might well be left alone. I could tell you a lot of methods by which people bring themselves before the public, and do most disgraceful acts as members of our profession. For instance, many of our members find out the charges of their opponents and then go and offer to do their work for a smaller fee. Then there is the passing of unsound horses for fees, and taking bribes for doing wrong acts of any kind. With regard to the person who has been struck off the register, I think, in the interests of the profession, that something should be done with this gentleman if he is guilty of the offence that it is said he is guilty of. I know that it was put in the paper lately that he did not take this bribe. If he did not take it, it is a funny thing that anything was ever said about it. Then there is getting men away from other practitioners by offering them more money, such as grooms. An old practitioner has a groom for a long while and sends him to give drinks and balls and medicine, and it is very advantageous for a new practitioner in the neighbourhood to get hold of these men, and they offer them more money. That is an act which I do not think is professional. Then there is getting friends to ask for work from other people's clients. They get friendly with clients, and then ask them to get the work transferred to their own friend. These are kinds of things that are far more dishonourable, as between one member and another, than any public advertisement can possibly be, and if there is any particular advertisement which is objectionable, the council could very well say whether it is objectionable or whether it is not. There are lots of advertisements which, to my mind, are perfectly honourable. If a man is starting in a fresh place, there is no reason at all why he should not put an advertisement in the paper and say that he is starting as a practitioner in the locality. Then as to distributing books. I do not know what books one can distribute, but certainly if one writes to a paper our council is not going to say that it comes under Bye-law 113, because I am afraid every agricultural paper that is in existence to-day has its own veterinary writers. Then no mention is made as to lecturing to county councils being an infringement of this bye-law. I have heard it said that a member of our college cannot, or ought not to, lecture before the public or county councils. I maintain that if this is done in a proper way nothing is more beneficial to the advancement of the veterinary profession, only it should be done like everything else, in a proper way. Advertising may be done if

it is done properly. But it is the underhanded practices which veterinary surgeons are capable of one to another which should not be allowed under any conditions, and yet there is no law or bye-law of any kind to stop these practices taking place. If you can make a law to stop these practices taking place, I think Bye-law 113 might very well be expunged.

General Sir FREDERICK FITZWYGRAM: With regard to the Parliamentary Committee, as far as my recollection goes there was only one question of any importance to the veterinary profession, either in the present session or in the late session. That question was something connected with the appointment of inspectors for meat and milk, and that sort of thing which the doctors had tried to keep to themselves, and in which we thought it was necessary that the veterinary surgeon should be placed in the same position and go with the doctor. I really forget the particulars of the case, but I know there was a great deal of interest felt in it. A good many inquiries and questions were put to the committee, and various things privately, and the result was that it was settled in a way perfectly satisfactory to the veterinary profession.

Mr. TRIGGER: As a member of the Registration Committee, I should like to say that I fully agree with the remarks made to-day that when a decision has been given by the council that a member's name should be struck off, undoubtedly the name of the member should go forth to the profession. So long as the case is *sub judice* and is under consideration the names should be protected with the greatest care in the event of the possibility of the case falling through. I think you will notice whenever an application is made to strike a solicitor off the rolls his name is never mentioned until the judge decides that the solicitor shall be struck off the rolls, and then it is said that the name of Mr. So-and-So shall be removed. I think that a great part of the punishment is the publicity that is given. You may strike a man off the rolls and he may still continue to practise so long as he does not call himself a veterinary surgeon. As a member of the Registration Committee, any influence I have in that respect will be used, so that the name of the delinquent should be published. With regard to what Colonel Lambert has said as to the election of members to the council, I do not think I agree with him. Are we to stir up an election because there happens to be the same number of nominations as vacancies? I think it shows that practically the profession is prepared to wait awhile, as there is no great and important question before them. Everyone can know the date upon which the nominations close. In that respect we are exactly in the same position as a Parliamentary or municipal election. If there is a sufficient number of nominees they naturally go in without contest, and in such cases a certain amount of expense is saved. With regard to what has been said about chemists selling veterinary medicines, we are exactly in the same position as the medical profession—we are neither better nor worse. Chemists prescribe for people who come in and see them, and sell ointments and so on. You will remember that when we brought an action against a man for calling himself a veterinary chemist we got the worst of it. Although we did not win the case, I notice in my district that it has been a warning to chemists, for some or them who did call themselves "veterinary chemists" are now calling themselves "agricultural chemists." That, I think, is a very much better designation. We have not the slightest power to prevent chemists from selling cattle drinks, etc. Mr. Hunting has referred to the Parliamentary Committee. The Parliamentary Committee always was a red rag to Mr. Hunting; but I do not know why. The Parliamentary Committee became obsolete when Mr. Hunting was on the council. According to my recollection he attacked it so vigorously that it was dropped altogether. But we have found it necessary to have a Parliamentary Committee. It is a very useful body, because it keeps watch over your interests. The question of tampering with servants, referred to by Mr. Banham, is

entirely outside the province of the Registration Committee. You could not expect any council or corporate body to pry into cases. Any cases of unprofessional conduct brought before the Registration Committee will be immediately dealt with.

Mr. BARRETT: I understand that in my absence my name has been referred to in respect to a list of patent medicines which appeaged in Messrs. Kibble & Co.'s Stores list. May I take this early opportunity of saying that I know nothing whatever about it. The term "Barrett" here does not certainly refer to me, and so far as I know I have never used the term "mandrake" in my life. I think it would have been only fair if Mr. Wooff had first of all dropped me a note. I entirely repudiate the advertisement; I know nothing about it and Kibble's have not under my instructions or under the instructions of my partner inserted any advertisement in this periodical. I may say that some 15 or 16 years ago when I first left college there was a list of preparations put in this book, but within three months I took the opportunity of withdrawing it. As far as I know nothing has appeared in this book for 15 years, probably since 1883 or 1884.

Mr. WOOFF: I only obtained this list from Messrs. Kibbles & Sons' Stores this morning, and I have not had time to look at it much. I think Mr. Barrett does not deny his responsibility for a full page list some years ago, and I had a suspicion that this advertisement was a remnant of that which appeared 10 or 12 years ago.

The PRESIDENT: I am sure you will accept Mr. Barrett's denial.

Mr. WOOFF: If Mr. Barrett says that it is not so, I withdraw what I have said.

Mr. BARRETT: And apologise?"

Mr. WOOFF: I shall not apologise if I am not wrong. I want to be convinced.

The PRESIDENT: Of course I cannot make you apologise.

Mr. BARRETT: I have told you that I know nothing whatever about it, and I think, as a member of the profession, you ought to apologise frankly for having coupled my name with an obnoxious advertisement of which I know nothing whatever.

Mr. WOOFF: I apologise to Mr. Barrett and accept his statement.

The PRESIDENT: As far as it is possible I will reply to some of the remarks made by the speakers. With regard to Colonel Lambert's remarks as to the nominations, I think we are all perfectly satisfied upon that point. It has been fully cleared up by other gentlemen who have spoken. If there is only one nomination for a post there cannot be an election. If there are only eight vacancies and eight nominations, it stands to reason that the eight names should be the nominations at this particular election. Answering Professor Macqueen, Mr. Wooft, and another gentleman relative to the names of the delinquents who appear before the Registration Committee, there is a bye-law, No. 115, which will now cover the ground. Therefore, in future, the name of the gentleman who is struck off will appear. You will see that there is a bye-law which points to this particular offence. Veterinary chemists have been spoken of. The Registration Committee have been anxious to deal with this particular question, and I quite feel for the gentleman who has to compete with chemists who sell drinks at six shillings a dozen; but at the present moment the Registration Committee say they have no power to stop it. We hope in the future that we may eventually obtain the power, because we see the seriousness of it to veterinary surgeons in agricultural districts. With reference to Bye-law 113, the suggestions Mr. Hunting has thrown out relative to that are very good. There is no doubt that at some future time the Registration Committee will bear that in mind and not have such a long bye-law. Mr. Hunting is a man who always comes to the point very quickly, and certainly

the wording of the bye-law which he has suggested is very much to the point. Mr. Hunting also spoke about the Parliamentary Committee. He particularly drew your attention to the Companies Medical Professional Bill. Here, of course, we were not able to give you a decisive opinion of what the Lord Chancellor would do, but our solicitor drew his attention to the fact that we were endeavouring that veterinary surgeons should be inserted in the same clause as everybody else, and that the omission of the veterinary surgeons in this Act would invite attack. The Lord Chancellor agreed that if his views were adverse to ours he would give us an opportunity of being heard. Mr. Thatcher informs me that the Bill is going into committee and the words "veterinary surgeon" will be placed in the Bill, so that I think we may be satisfied on that point. Mr. Hunting somewhat twits the Parliamentary Committee that we have not taken some cognisance of the different Medical Bills that are passing through the country at the present time. Well, I must admit that the council have not taken much interest. The interest has purely been taken by the centres where attack has been necessary. He mentioned the Leeds Bill, and I may point out that I personally took a very great part in getting these clauses inserted appertaining to the veterinary profession, that we should be the sole inspectors and operators in using the tuberculin test. We were very successful in Leeds in obtaining everything up to a certain point that we veterinary surgeons could desire. I must admit that the council itself, as a body, have not had much to do with these private Bills. I do not know why. I think I should know, but we have not been communicated with. I do not remember receiving any letters asking for the council's help and support. I quite sympathise with what Mr. Banham has said with regard to the disgraceful acts of bribing grooms and tipping coachmen and such things. I think that that must be left to the gentlemanly conduct of the profession at large. I do not see how we are to legislate for such conduct. These disgraceful acts are generally very hard to prove. With regard to the legal expenses in the balance-sheet, I am not a very good hand at anything to do with money matters, and considering that our treasurer has been with us for so many years he is better able to answer this question than I am. I call on Mr. Wragg to give you some information on the legal expenses, if you wish it.

Mr. WRAGG: May I ask the speaker what he wants to know about the lawyer's charges?

Mr. ANDERSON: I want to know whether this £162 was for prosecuting one unqualified man.

Mr. WRAGG: No, sir, certainly not. It is the whole of the solicitor's charges for the year. Perhaps you will be delighted to hear, as I am delighted to tell you, that the charges this year are £162 against £220 last year, so that we have decreased abont £60. I am hoping that we shall decrease every year £60, and then perhaps we shall be able to present a balance sheet without law charges at all. If you require to know the items that make up that £162, if the president and council give me permission I shall be very pleased to show you the accounts of the lawyer, the bills that have been paid. I should like you to tell me if you require that permission of the council at the next meeting.

Mr. ANDERSON: I simply wanted to know if the one case cost £162.

Mr. WRAGG: No.

Mr. ANDERSON: I should like to see the figures.

Mr. WRAGG: I will make an application to the council at the next meeting, because no one is allowed to see any of the papers belonging to this college unless the council and president give permission. I have no doubt the permission will be granted.

Mr. RUTHERFORD: I think that this gentleman, on reconsideration of the

question, will see the advisability and good sense of dropping the question altogether. He ought to know that our solicitor cannot be here at every council meeting, and advise in connection with the business of this great council without our incurring a great deal of expense. If he raises this question and wants the books opened, it establishes a dangerous precedent. I think it is a very improper question to ask.

Col. LAMBERT: I beg to move "That the annual report be now received and adopted."

Major PHILLIPS: I beg to second that.

The motion was carried unanimously.

On the motion of Mr. LAWSON, seconded by Mr. WILSON, a hearty vote of thanks was accorded Mr. Mason for presiding.

The PRESIDENT: I beg to thank you very much for the manner in which you have passed this vote of thanks. I certainly cannot sit down without thanking my brother councillors for the assistance that they have given me during the last year, and also the staff generally, not forgetting Mr. Rutherford from Scotland. Mr. Rutherford is intimately in touch with us, and I can assure you, from what I have seen done in Scotland, that his name should not be left out, although it does not appear as one of the officers of the council. I thank you very much for your attendance here to-day.

May Examinations in Scotland.

At meetings of the Board of Examiners held on and between May 25th, for the written examination, and May 27th to June 1st for the Oral and Practical examination, the following gentlemen passed their Final Examination, and, with the exception of three who were under age, were admitted Members of the Royal College of Veterinary Surgeons:—

Dick College.

Mr. H. E. Audley Charles
W. P. Cushnahan
R. S. Garraway
†A. Gofton, *under age*
G. H. Livesey
H. V. Mossman
J. A. McGregor
*Mr. J. Pollock
S. A. Winkup, *under age*
C. Farrar
T. F. Hall
E. E. Stokes
J. Younghusband
H. O. Purves

New College.

Mr. J. C. Blake
G. Barras
H. Dyson
*W. L. Gascoyne
D. McDonald
Mr. A. McNae
H. Taylor
J. Paul
J. Evans
J. Fairclough

Glasgow College.

*Mr. W. W. Lang
J. J. Atkins, *under age*
*P. McKinlay
W. Watson
Mr. J. Stevenson
A. F. Jackson
E. P. Jenkins

Marked thus * passed with 2nd Class Honours.
" " † " " 1st Class Honours.

London College.

Mr. R. C. Bell

The following passed their Third Examination :—

Dick College.

Mr. W. J. Boyd
J. E. Cockcroft
F. W. Cundall
C. H. W. Cunningham
R. A. Edwards
G. Garden
Mr. W. Hepburn
*R. B. Littler
T. E. Nunan
E. Ryan
S. E. Sampson

New College.

Mr. E. Ashworth
W. G. Burndred
E. Finucane
H. E. Martin
*Mr. B. Runciman
*T. Runciman
A. Spreull
J. P. Dunphy

Glasgow College.

Mr. J. P. Smaill
Mr. J. Baird

The following passed their Second Examination :—

Dick College.

*Mr. W. J. Coffey
J. Dalrymple
H. Barker
P. Braid
W. T. Dunstan
*W. Harris
Mr. W. Jelbart
*T. J. Keall
*W. Nairn
*J. S. Nimmo
J. P. O'Reilly
†J. Warwick

New College.

Mr. E. W. Morton
*H. Barrow
*F. J. Dunning
W. A. Elder
H. B. Kauntze
† H. Kirby
*. Latta
Mr. H. H. Lord
Z. B. Rutherford
H. Sugden
*G. T. Willows
J. D. C. Ward
F. R. Sheppard

Glasgow College.

Mr. A. L. Logan
†J. McCutcheon
†J. H. Lyons
*A. McDowell
*Mr. W. Ferguson
*A. Logan
J. H. McLaren

† 1st Class honours, * 2nd Class honours.

The following passed their First Examination :—

Dick College.

*Mr. A. C. Bowden	Mr. W. Munslow
*W. J. Colebatch	W. Robertson
E. Dunstan	J. D. Whitehead
J. Forbes	*J. Whitty
H. B. Hiles	*H. Yeoman

New College.

*Mr. W. Hepburn	Mr. J. E. Smith

Glasgow College.

Mr. G. W. Weir	*Mr. J. Wallace
J. McFarlane	†J. F. Graig
N. H. McAlister	

R. RUTHERFORD, F.R.C.V.S.,
Secretary, Board of Examiners.

SOUTHERN COUNTIES VETERINARY MEDICAL SOCIETY.

THE annual meeting was held at the Royal Hotel, Southampton, on April 6th, when the president, Mr. E. W. Baker, of Wimborne, occupied the chair. The other members present were Messrs. H. Hall, Southampton; J. T. King, Bournemouth; J. B. Tutt, Winchester; and C. Pack, hon. sec., Lymington. Professor Penberthy was also present.

Election of Officers.

The PRESIDENT, referring to the election of a president, said he had the greatest possible pleasure in proposing the name of Mr. Tutt, of Winchester.

Mr. HALL seconded the proposition, which was carried unanimously.

Mr. TUTT thanked them for the honour they had done him.

Upon the proposition of Mr. PACK, seconded by Mr. TUTT, Messrs. Baker, King, Hall, and Carter were elected vice-presidents for the next year.

The PRESIDENT said he should like to claim the prerogative of proposing the re-election of their hon. secretary, their old friend, Mr. Pack. He felt confident that they could not have a better secretary, and he was sure he was only recording their feelings as well as his own when he told him how deeply indebted they were to him for the work he had done, not only during the past year, but during the many years he had filled the office. Had they all worked as he had done, he was sure the association would be more flourishing than it was.

Mr. TUTT seconded the motion, which was carried.

Mr. PACK, in returning thanks, said he had the same old tale of difficulties to tell. They had a balance, it was true, on the right side, and the only regret was that they could not get a better attendance at their meetings. The expenses during the past year amounted to £9 16s. 2d., and the receipts, including a balance from the previous years of £5 9s. 9d., to £15 19s. 9d., thus leaving a balance in favour of the Association of £6 3s. 7d. Their

† 1st Class honours, * 2nd Class honours.

balance was therefore bigger than that with which they commenced the year, although they had given subscriptions amounting to some £3 to the Victoria Benevolent Fund, and the Public Health Congress.

Inflammation of the Lungs and Pleura of the Horse.
BY PROFESSOR PENBERTHY, F.R.C.V.S.

Professor PENBERTHY said the secretary was responsible for the choice of the subject, on which he proposed to make some remarks as a basis of discussion. Up to a comparatively recent period pneumonia and pleurisy affecting the horse had been rather a favourite subject of debate at the meetings of veterinary medical societies. Of late he had noticed it so often to the fore on such occasions, yet our knowledge concerning certain important aspects of the subjects had materially increased during the past few years. In the time at his disposal it would be impossible to exhaustively deal with the affection, indeed he could but cursorily touch on some phases. He could claim for his subject that it was relatively common in the experience of most practitioners, and therefore he hoped to derive much advantage from hearing expression of the views of members present. The professor did not propose to refer to those inflammatory conditions induced in the lungs and pleura of the horse by the bacilli of glanders and tuberculosis, or to enter into a very minute description of the pathological conditions which obtained in the affected structures. In general references to the subject of pneumonia it is usual to find at least three varieties described. Pathologists apply the terms "croupous" or "lobar" to inflammation of the lungs, whose principal product is fibrinous and whose area is extensive. Clinically this has often been termed "acute," probably because the majority of cases of acute pneumonia in man are connected with such structural changes. In this variety in man the stages of engorgement, red and grey hepatization, are usually well defined. Post-mortem examination appears to show that this form of inflammation is less general, or the differentiation of the stages less appreciable in cases of pneumonia in the horse. This affection is, however, simulated in many of its characters in the horse, and is well described by its clinical appellation "acute." Period of incubation, fever, rapid spread of the morbid change until large areas are affected, and frequently fatal termination, are usually well marked features. Necrosis followed by gangrene often supervenes, and absorption of the products of putrefactive bacteria may affect the patient. Occasionally pyogenic organisms attack affected portions of the lungs and suppuration occurs. In a considerable proportion of cases resolution and perfect restoration of lung tissues follow, the inflammatory products being removed by leucocytes and by expectoration. In man, after recovery from such an attack, recurrence is not at all uncommon, indeed one attack appears to predispose him to another. I may here state that I have not been able to observe such a predisposition on the part of the horse recovered from acute inflammation of the lungs. With this variety of pneumonia there is often pleurisy.

Broncho, catarrhal, or lobular are terms applied to that form of pneumonia in which the smaller bronchi, as well as the air-cells, are the seats of inflammation, which is limited to small areas (lobules), and whose product is largely composed of epithelial cells. Emphysema is often a result, but necrosis and gangrene are comparatively rare.

Interstitial pneumonia—the condition in which there is a marked increase in the connective tissue in the lungs—may follow either of the foregoing, but I think this is comparatively rare in the horse.

When the lungs and pleura are simultaneously affected, the term pleuro-pneumonia is often used to designate the condition. In the speaker's

experience, this occurrence had been much more common when the pneumonia of the horse was nearest in character that usually termed acute or croupous.

Respecting the cause of both pneumonia and pleurisy, he took it there would be no question raised to the statement that the actual structural changes in the lungs were due to irritants. The irritants, in the great majority of cases, were micro-organisms: but though going so far as to state his belief that microbes were the causes of the morbid alterations in structures, Professor Penberthy would by no means admit that they were the only factors in operation in production of many of the attacks of pneumonia in the horse. Avoiding special reference to any of the many microbes which had been caught and singled out as the cause *par excellence* of equine pneumonia, he appealed to ordinary clinical observation for an exposition of his views on this aspect of the subject. At the outset, he might say he thought it probable that not micro-organisms of one variety alone, but those of different varieties, may induce the morbid change in the lungs; that their effect on the organs depends on their numbers, virulence, and to a marked degree on the condition of the lungs themselves.

In certain situations—principally in the horses occupying them—as dealers' stables, remount depôts, transport boats, etc., etc.—there are frequently large numbers of special kinds, or such as have acquired special properties, and it is well known that animals stabled in such situations become the subjects of pneumonia by infection—infectious pneumonia, as it is now termed, often, but wrongly, included under the head of "influenza." The effect of an attack appears to be materially increased if the animal is severely exercised; the increased respiratory effort is believed by some to carry deeper into the lung the infective matter, while there can be little doubt that the increased vascularity and snbsequent lagging of the blood, as a result of the depressed heart of the "soft" animal, afford most favourable conditions for the development and activity of the microbe which has gained access. It was was here remarked that young horses are most commouly brought under such conditions, and if these chances and those of pneumonia generally recognised as being associated with strangles be eliminated, there would not appear to be good ground for regarding youth as such an important predisposing condition as it is held to be by some writers on the subject. It is a generally recognised fact that horses so affected are dangerous, as they may introduce the affection into a stud previously healthy, whose members have not been exposed to the alleged predisposing conditions. In his experience, when this infection had been introduced into an establishment he had been unable to detect any signs of special predisposition or any special predisposing causes in animals contracting the disease. This affection is probably due to a microbe having highly special qualities inherited or acquired. In some cases the lungs are in a state of croupous inflammation, in whose product leucocytes are particularly numerous.

Though it is not denied that more than one microbe may cause pneumonia in the horse, taking the foregoing as a type, such is usually regarded as infectious pneumonia and all other forms as sporadic. Though the degree of intensity of contagiousness may differ, Professor Penberthy stated his belief that all ordinary forms of inflammation of the lungs are more or less contagious, at any rate that it is not easy, during its course, to form any reliable opinion as to whether there is great or little danger of contagion.

In considering the etiology of pneumonia, while admitting that the factor most commonly, if not always, inducing the structural changes in the horse's lungs is an irritant of microbic nature, experience tells us that other circumstances play an important part in bringing the microbes into action. Although little definite appears to be known as to special microbes inducing inflammation of the lungs, it is probable that such are of more than one variety, or

that one variety is very commonly distributed. Indeed, many observers go so far as to say that bacteria capable of inducing pneumonia under favourable conditions are always present in the respiratory passages of the horse awaiting this occurrence. If such be the case, the determining factor must be of great importance.

Among the most highly accredited causes of pneumonia is cold. If by this is meant that exposure to low temperatures is the sole cause of the changes in the lungs, one cannot accept the view for a moment. Horses in the coldest countries, which travel over ice and snow for six months of the year, I am told, suffer rarely from the affection. Exposure to cold is in some cases followed by pneumonia, but only an infinitesimal minority of animals so exposed contract the affection. Alternations of heat and cold are not uncommonly the forerunners of the "chill" which precedes the appreciable signs of inflammation of the lungs, but a most minute proportion of horses so exposed become so affected. An imaginary freedom of "pit ponies" has been brought forward to support the view that sudden changes in temperature are a prolific cause of pneumonia. The speaker's experience in collieries had been very limited, but it certainly did not support this view, as on the only occasions he had been called on to professionally see these little creatures in the bowels of the earth, it had been on account of outbreaks of fatal pneumonia, while he remembered that in one colliery, to which his visit was not of a professional nature, the alternations of temperature were so great as to make it most uncomfortable to himself, and here pneumonia was not known to exist. The inhalation of irritant gases, passage of food, etc., down the trachea must be reckoned with in enumerating the causes of lung inflammation; these are but rarely in action. Among the etiological factors we have to consider weak pulmonary vessels and feeble heart's action included under the term "want of condition," while it is important to realise the fact that when bacteria get into the large veins the pulmonary capillaries are the first they enter, and so must stand a great chance of being arrested in.

To sum up the situation, the structural changes in the lungs in all forms of pneumonia of the horse are produced in the majority of cases by micro-organisms. These micro-organisms may gain access to the lungs through the trachea or be carried in the blood from the heart to pulmonary capillaries. Some of these microbes appear to be much more potent in producing pulmonary inflammation, and for their action require no appreciable predisposing or exciting conditions. That is to say, if they gain entrance they are pretty sure to induce this affection, and experience tells us that they very readily pass from the affected to the healthy animal. Probably other microbes, much more commonly distributed than the foregoing, but capable of inducing pneumonia under special conditions, depend for their action mainly on the so-called predisposing conditions as before enumerated. It is possible and even probable, when conditions in any case are specially favourable to the development of such microbes, they may become very numerous and thus appear to acquire virulence, and a case of so-called sporadic pneumonia become appreciably contagious, by which is meant that all forms of pneumonia are more or less contagious. Still, as the degree of contagiousness is so varied, for purposes of description the terms infectious and sporadic are useful and worth retaining.

Infectious pneumonia of the horse is often associated with a history of possible infection, such as a dealer's stable, importation from America or Canada, cohabitation with animals from such situations, while in more than one instance it has appeared that the infecting matter has been conveyed by grooms from the diseased to the healthy. In this form the temperature is usually raised, often to a high point, 104 to 107 for some time, 24 to 60 hours before any other symptoms, except perhaps some rigors, are noticed. During

this period the appetite is well maintained, and the desire for drink not at all marked, indeed, I have not infrequently observed that an animal will not take his water. Dullness and depression are usually first observed, the pulse quickened, and the respiration disturbed no more markedly than when such an elevation of temperature accompanies changes in other organs, or in fever without appreciable local change. It may be said that at first there is little or nothing to attract special attention to the respiratory organs, though occasionally there may be a cough. Neither auscultation nor percussion at this stage yields much valuable information. While admitting that in some cases the means may possibly assist in helping the medical attendant to form a prognosis, the speaker did not attach the same practical value to the information to be gained by auscultation and percussion as is claimed for them by some. After this the respiration becomes increasingly fast and laboured, auscultation and percussion may tell us that lung consolidation is progressing rapidly, the appetite is lost, depression becomes marked, and the force of the heart on the blood stream less. Now a discharge is frequently seen from the nostril. In favourable cases, after a crisis, the temperature continues to drop steadily, the respiration becomes quieter, the pulse stronger, and other signs of returning health make their appearance. Continued depression, an oscillating temperature, weak pulse, increasing area of consolidation, are indicative of danger, while the existence of gangrene may be evidenced by the fœtid odour of the breath. In many cases of pneumonia the battle between the micro-organisms and the macro-organisms appears to be on equal terms and by no means decisive; the case is said "to hang fire," while relapse is not uncommon. When both lungs are attacked, the course may be very rapid, death occurring in 48 hours or even less after pulmonary symptoms have been observed.

The high temperature, imperfect æration of the blood, and weak state of the heart all go to lengthen the period of convalescence, a circumstance of considerable importance, as a too early return to work is often followed by serious relapse.

Clinically, broncho-pneumonia differs very materially. Respiratory distress, cough, nasal discharge are usually much more marked, but these are rarely preceded or accompanied by such high temperatures or such extreme debility, and the affected areas are found by physical examination of the chest to be smaller and abnormal sounds referable to the small bronchi. The course may be short or protracted, more frequently the latter, and the affected appear more liable to future attacks.

After having exercised the precaution of having the patient isolated, the treatment of pneumonia of whatever form should in the first place be directed to securing the freest possible supply of pure air. Blood pressure in the lungs may be lessened, and some of the febrile heat extracted by bandaging and rugging. It appears that if any such means are at our disposal, we should attempt to attack the microbes inducing the structural changes in the lungs. This, the speaker believes, may be at any rate to some extent effected by giving iodide of potassium and quinine, drugs on which he had largely depended in pneumonia for some years past. In course of many cases a depressed or failing heart will call for a stimulant, which is best supplied by carbonate of ammonia, while Epsom salts help to get rid of effete matter and to reduce temperature.

It is a matter of very great importance, and especially so in broncho-pneumonia, that draughts should be avoided, as in very many cases the disturbance caused is so great that more harm than good is done, the practice not infrequently being followed by serious results. In cases of the bronchial type, inhalation of vapour, medicated with eucalyptus and turpentine, or carbolic acid, appears to relieve symptoms.

The much-debated subject of counter-irritants continues to indicate that the conclusions of practical observers still differ. A large number of practitioners are perfectly satisfied that they are extremely useful—indeed, indispensable—and apply them in every instance. Others have no faith in their efficacy, but rather regard them as doing mischief, and consequently never apply them. Though he believed that in many cases their most marked effect is to be observed in increased debility of the patient to whose sides they are applied, his experience seems to indicate that sometimes, if adopted in the earliest stages, and also when a case is "hanging fire," the effect of the counter-irritant materially alters the aspect of the case for the better.

Referring to inflammation of the pleura, Professor Penberthy said he thought that in the light of present knowledge it would be safe to conclude that the structural changes were due to irritants, and that these irritants are microbes. It is well known that the bacilli of glanders and tubercle may induce pleurisy, while in a large proportion of cases a pus-producing organism is responsible for the structural alteration. Usually the microbes pass through the lungs after entry by the respiratory passages; they may also pass from the abdomen through the diaphragm, through wounds in the chest walls, or in the glands of the thorax, or by the blood stream. Various forms of pleurisy were referred to vascular, dry, moist, acute, sub-acute, etc.

The symptoms were said to be referable to pain, pressure on the lungs, and the absorption of toxins produced by the microbes. It often happened that the veterinary surgeon's services were not sought until the disease had advanced, and the crepitation sounds, we read so much about in text books, were not appreciable; the acutely painful stages, too, may have passed off, and for some time, especially in those cases in which effusion was slow, a diagnosis was by no means easy. The speaker had not infrequently at post-mortem examinations met with the lesions of pleurisy whose existence he did not suspect during life. Also, when effusion commenced to take place rapidly, the drop in temperature, the return of appetite, thoracic breathing, and the evidence of less pain, were occasionally for the time misleading.

As to the treatment of pleurisy he thought this must be mainly on the same lines as that of the previous condition. He had seen little to favour the view that withholding all drinking water was of great benefit, and the same applied to tapping the thorax after effusion. Warm water applied to the chest walls appeared to give some temporary relief in the painful stages. Counter-irritation, he thought, was open to the same discussion applied to pleurisy as to pneumonia.

Discussion.

The PRESIDENT said he was sure they were all deeply indebted to Professor Penberthy for the very able remarks he had addressed to them, and the right way for them to show their appreciation was by a practical and thorough discussion. He hoped, if they could, they would pick the paper all to pieces.

Mr. PACK said when they were at college it was generally recognised that there was croupous pneumonia and catarrhal pneumonia, but it was never pointed out, as it was supposed now to be due to micro-organisms. It seemed probable that it should be so, and there was a vast difference between pneumonia of an infectious character and pneumonia of a benign character, which passed off very quickly. Croupous pneumonia seemed to hang fire at one stage, and did not go forward or backward, but in catarrhal pneumonia they saw a change one way or the other, and it ended in resolution. All that was necessary to produce croupous pneumonia was, he thought, co-habitation with a diseased animal, or coming in contact with the virus which contained the probable organism. The difference, to his mind, in the two cases was

that in croupous pneumonia no other circumstances were necessary, but that the animal should come in contact with the virus, but in that of the catarrhal there must be some other cause in co-operation with the micro-organism. With regard to high temperature one did not see a great many cases of pneumonia till they were half-way through, and when they took the temperature it might be up to 105°, and perhaps the pulse only 40° or 45°, and after that it crept up till it reached the same ratio as the temperature. With regard to lobular pneumonia, undoubtedly horses that were weakened by long exertions, or horses that were allowed to get very wet, and were not covered over, had the system rendered more susceptible to pneumonia, but he hardly thought cold could be a cause of pneumonia. Two years ago he saw a horse which had been clipped turned into a meadow, and it had to trot round the field to keep itself warm. It, however, kept free from cold, but had it been tied up it would have undoubtedly have contracted a cold. As far as auscultation went he should be more inclined to rely on the temperature. Now as to the treatment. He should give the animal salines in his drinking water, such as iodide of potassium or mag. sulp. As regards the question as to when a horse was convalescent after an attack and fit to work, he always told his clients to let the animal walk about the yard, and when they saw it running about and kicking up its heels then it was time it did something. He could not say much about pleurisy, and as to counter-irritants, he thought they were often resorted to as a last resource, and the treatment should be much the same as for pneumonia.

Mr. TUTT said, with reference to pleurisy, he had had several cases, and when he had made *post-mortems* he never yet found one with attachments. Respecting iodide of potassium he was glad to hear Professor Penberthy speak of it favourably as a ball, for he always used it. He was a great believer in quinine, especially for high temperatures, and although he had always given it in the liquid form, he should be pleased to try it in the form of a ball. As to counter-irritants, he was a great believer in mustard, and had found that after its application the temperature had dropped one or two degrees. He had a case of a horse with a temperature of 106°. He treated him with quinine, and applied mustard to the sides, and before next morning the temperature fell some three degrees. He was also a great believer in stimulants for pneumonia, especially where they had a flagging pulse. He had given beer where they would drink it, and he had also used extract of malt. With regard to feeding, he had given milk, but he never had it boiled. He believed milk had some action upon the temperature. He should like to know whether it would be of any service to pump iodide of potassium down the trachea.

Mr. KING said he had listened to the paper with a great deal of pleasure. Respecting the disease, he had lately had a great deal to do with this infectious form of pneumonia. He was quite with Professor Penberthy, and he believed the disease was due entirely to micro-organisms. The many cases he had had were in different stables, and the progress of the disease had been cut short by the isolation of the diseased horses from the healthy. In the outbreak at Bournemouth they had had some most peculiar results. For instance, a horse would be affected in one stable in one part of the town, and there had been no contact at all with the other horses, and yet the symptoms, and all the particulars of the cases had been identical. One most noticeable thing was the tremendous high temperature. There had been never less than 106°, and he had one case in which it reached 108½°. He believed the scourge in Bournemouth was due to some specific cause. It had been difficult for him to get the exact time when pneumonia was taken, but in several cases he was certain pneumonia was not present even with such an high temperature as 108°. There was positively no lung mischief, and that had puzzled him.

In three or four cases there was after three or four days both pneumonia and pleurisy, and he should like to know how soon pneumonia could be followed from such an attack. He entirely believed in not forcing medicine down a horse's throat, but he was a great believer in electuaries, or some ordinary drug. In some cases he had tried spirits of ether and ammonia, and quinine had also proved very useful indeed. As to counter-irritants, they must be guided by the animal and the pulse, and he was not in favour of them for lung affections. As to the period of convalescence, that was aptly described by Mr. Pack. It was certainly new to him that the micro-organism which caused pleurisy was the same as caused strangles and glanders.

Professor PENBERTHY: Yes, it may cause both.

Mr. HALL said he wished to add his share of thanks to Professor Penberthy for his admirable remarks. As far as treatment was concerned, he was with him that iodide of potassium and quinine were both first class remedies. He had relied upon quinine. As far as medicines went in regard to fluids, he was also with Professor Penberthy, because in chest affections, horses, he believed, were absolutely killed by the clumsiness of the attendants who administered the draughts, and he had great difficulty in running against a stableman who knew how to give a ball properly. He was a believer in inhalation, and if he got a horse into his own place he got very little medicine. He gave him plenty to eat, and applied steamed hay, and plenty of fresh air was about as good as anything. He believed in counter-irritants, especially mustard. The period of convalescence depended greatly upon the force of the attack, and upon the constitution of the animal, but the temperaure was the greatest aid to diagnosis. If they relied upon the temperature of the animal they were much more likely to come to a correct diagnosis than by relying on auscultation. He had never come across a case of pleurisy without pneumonia, and he had never seen adhesion in the horse.

The PRESIDENT said he was struck particularly with Professor Penberthy's very reasonable explanation as to why young stock were more readily affected than older ones. He took it that he meant they were more brought together. He did not think they were more susceptible. Where they had a stable of 10 or 12 horses, where there was an attack they could generally prove the truth of Professor Penberthy's remarks that some days prior to a manifestation of pneumonia they got a high temperature. There was another remark made by the Professor as to the discharge of a gangrenous nature. There was a nasty discharge from the nose, and the next day the horse was better, and was quite able to be put to work. He was quite at one with the previous speaker's remarks that the temperature was a great guide to diagnosis. With regard to auscultation and percussion, he thought it always advisable to auscultate wherever it could be done, and the treatment with iodide of potassium was one he had followed for years. When it could not be given internally he had applied a strong tincture of iodine to the sides of the horse, as a counter-irritant. He did not like mustard because it irritated the horse, and because when it was once on it was a job to get anything on the top of it. He should like to ask Professor Penberthy whether at times a continual application of quinine did not upset the liver. He was rather disposed to think it did, and he should also like to know whether it was not advisable to administer nux vomica, which he considered to be one of the finest remedies. In most lung affections he placed great reliance on inhalation of some medicated vapour, for he was opposed to the administration of medicines as drenches if they could get it in any other form. With respect to food, there was one food which had not been advised, and it was one he had used for years. He took no credit to himself, for it was Professor Brown who led him to adopt the treatment. He gave large quantities of bovril, both as fluids and as balls. He had never seen bovril do any harm, but milk did, as sometimes it caused diarrhœa, and

it sometimes had the opposite effect. Bovril had neither effect, nor had beef tea.

Professor PENBERTHY said he was extremely pleased to receive their thanks, although he must say they had been too profuse in their kind pro-expressions towards him. The fact of his being there was evidence that it pleased him to be there. Turning to the subject which had been discussed, he said that of inflammation of the lungs of the horse was an extremely important one, even more so than those occasionally discussed at such meetings. In his remarks as to the cause of pneumonia he should like it to be understood that he did not there identify any special micro-organism with any kind of lung disease, but he agreed with Mr. Pack that the croupous pneumonia was due to a specific micro-organism. As regarded iodide of potassium if he had a bad case he gave iodide in water. In the matter of counter-irritants he must confess he had not a very strong opinion one way or the other. He had seen mustard applied to the chest of a horse which had a high temperature and the temperature had decreased considerably. As regarded the feeding of animals he did not object to Bovril. He had tried it both ways, and he should not like to have it understood that he did not believe it was well to sustain the animal by whatever way they could. When they had pneumonia and took their food well his advice was not to waste much iodide of potassium about them. The exigencies of practice so far as balls and grooms were concerned he could trust to their wisdom in their different practices; he certainly found it difficult to get grooms to give balls satisfactorily. As regards the discharge from the nose he believed it was an important point. They should pay great importance to the discharge and look upon it as being very bad, and he agreed with Mr. Baker that they should appreciate that the discharge was coming from the necrosed portion whether it was putrifying or not. As to Mr. Baker's question whether large doses of quinine deranged the liver he could only say that he had not noticed such symptoms, because he never gave large doses, as he always coupled them with iodide of potassium. As regarded nux vomica he thought no one could object to that, because it restored tone to the nervous system, etc., and brought about a total recovery much more quickly.

THE CENTRAL VETERINARY MEDICAL SOCIETY.

(*Continued from page* 460.)

Mr. SAMSON: I thoroughly agree with many of the practical remarks made by Mr. Porch. I should be very sorry to leave a ligature on for any length of time, and think it would be a most dangerous course to take. I much prefer the old plan of docking—it is necessary of course to get the joint and use proper care. I don't think a horse need be rested after the operation. Certainly docking may be a fashion, so is castration—in Paris I believe they castrate very few animals. I should like Mr. Clapp to explain how long tails produce mud fever. No doubt docking causes a good deal of pain, as also do other operations which we perform, but it is time the veterinary profession put its foot down on some of these fads which are brought forward by those who know very little about the subject. I suppose there have always been cranks and always will be. The R.S.P.C.A. has to get its contributions in and consequently must bring these things before the public. I think we should strongly object to the proceedings which the Royal Society so frequently institute, and put it on record that docking, although painful, is a necessity in a great many cases, in order to obviate accidents, etc.

Mr. SLOCOCK: I wish to thank Mr. Clapp first of all for bringing this paper before the society. I think it is a question which should be freely discussed

by all veterinary surgeons. I uphold and believe in docking with discretion. I do dock, have docked, and hope to continue to dock. I don't uphold the action of the Royal Society, and I think it is time we understood one another. As to the operation, I look upon it as a very simple one, and, if carried out skilfully by a veterinary surgeon, one that need not delay a horse a day's work. One little wrinkle which I have learnt is to put a good strong man at the end of the tail and let him pull and pull hard. The joint is then stretched, and after the severance is effected you get very little hæmorrhage. I usually ligature the tail, use the ordinary docking knife and searing iron, and believe there is very little pain. As to the actual necessity, of course this is a very large question. In many cases it is necessary. If you dock young animals at a few weeks old, I think you dock indiscriminately. The animal perhaps grows up as a type of a horse that does not require docking, and you cannot put his tail on again. A docked colt may do very well for a time, having a fluffy coat provided by nature. You grass him and when he becomes a yearling you will see that he will stand still while the undocked yearlings go ahead. I have docked hackneys a few days old, but the next one I dock will be operated upon when he comes off grass. If a stallion he will be docked at 1½ years, and if a mare when she comes to work. Take a horse—a weight-carrying horse—and let him have his natural tail and mane, and I don't think you would think much of him, but dock the animal and I believe you would admire him. Suppose a farmer breeds a horse and asks you to dock him. You believe that the value of the horse would be greatly increased by docking—don't you think you would be acting in your client's interests to dock the animal? As to the use of the tail in hunters, I believe to a certain extent it acts as a rudder. One remark on the docking of lambs. Being a farmer's son I have seen many sheep and lambs docked, and in my early days often assisted in the operation. You catch the lamb on the run and slip the knife underneath the tail, which is easily severed. There is very little hæmorrhage. I never saw a lamb bleed to any extent. A sheep's tail may be some use to it, but I never saw a sheep use its tail for brushing the flies off.

Mr. HUNTING: There is very little one can add to what has already been said on this subject. Most of us have our own notions and probably differ on some points. Still, I don't know that there is any harm in difference of opinion. First of all as to the definition of cruelty. Is docking cruel, or not? I accept the definition given by Mr. Clapp that "Cruelty is the infliction of pain without justification." I also agree that there is pain in docking. We acknowledge that there is some pain, but we say that it is very little. Mr. Clapp made use of the expression that he would show anybody by "ocular demonstration" that there was very little pain. Of course we have all heard of the horse which is said to have gone on feeding during the operation. I have been told of a horse trying to feed after a round shot had gone through its jaws. There are hundreds of cases of horses suffering agonies of pain without showing any signs whatever. Mr. Clapp says there ase six or seven nerves in the tail. We all know that there are several nerves, although perhaps not quite sure as to the exact number, and it is certain that the cutting of same must be attended with pain. Of the two methods of stopping hæmorrhage which have been referred to I think there is no doubt that the actual cautery is most effective. The advantage is that you can put your horse to work at once, the disadvantage is that it is painful. As to docking foals—this opens up the whole question of justification. Other speakers have agreed that there are some horses which should never be docked at all. And here I would venture to suggest that justification cannot be claimed for the operation merely because it is performed by a veterinary surgeon. With all respect to the profession, I say there are others who are as well

able to perform it as many of us. If another man can do it as well as we can let us get rid of the idea that only members of our own profession can perform it without cruelty, for it suggests some other reason that has not been mentioned. As to the class of horse which should be docked, I think there is some justification for docking harness horses. A dealer gets perhaps 20 carriage horses home together. They are put in a row, and unless he is a very strict church-goer he docks them on a Sunday. We will allow that they are skilfully done. I say he is justified in docking the lot if by so doing he prevents one or two kicking and perhaps doing serious damage. I think, however, that fully 90 per cent. of the horses in this country are docked without any justification whatever. There is absolutely no justification for omnibus horses being docked. Many of these horses have extremely short docks, and it is a remarkable coincidence that about the same time that short docks became fashionable the omnibus companies introduced glass windows in the fronts of their vehicles. Whether this was to give passengers a better view of the horses' hind quarters or not I don't know. Whatever the reason it was very noticeable. I can see no earthly reason for docking omnibus horses, seeing that the reins are held about four feet above the horses.

Mr. SAMPSON mentioned 'bus horses, and immediately qualified the statement by referring to the "leaders." I think if any horse requires docking most certainly a "leader" does, as he most easily gets a rein under his tail. As to hunters I see no reason at all why they should be docked—I think it is simply done as a fashion. If you go into Cheshire or into the Shires you will find none of the thoroughbreds docked. No difference exists between these and half-breeds if utility only is considered. If you can show that the value commercially and the appearance of the animal are increased by docking, then I am inclined to think that in many cases there is justification, as the amount of pain is not great. So long as the law does not prohibit docking, and the public require it done, it is justifiable. Of course in many cases it is done without any necessity whatever, being merely for fashion's sake, and I think the habit of docking polo ponies is a good illustration of this.

Major NUNN: It has been stated that undocked hunters cause their riders to get badly splashed. I have four hunters—two docked and the others undocked—but have never found any difference between them in this respect. With regard to docking harness horses, I think the necessity of doing or not doing so largely depends upon the class of vehicle driven. There is a class of vehicle used in Bombay which practically makes it necessary to dock the horses. At one time during my experience in India we had about 1,600 undocked ponies. The superintendent had an idea that it was cruel to dock the animals. The vehicles in which they were used were of the class described, and there were so many accidents that all the ponies had to be docked. With regard to a horse using his tail as a rudder, I do not think there is any justification for looking upon this as a fact. It has been mentioned that docking causes as much pain to the horses as the amputation of a finger, etc., would occasion to a human being. I don't know whether I am brutal in my views, but I do not consider animals suffer pain as human beings do—I don't think all human beings suffer pain in the same way. Men of low intelligence do not seem to feel pain as others do. A noticeable instance of this occurred in my experience where a man, a native, was shot through both cheeks, but rode on in a blazing hot sun for a distance of over four miles, and then unsaddled and groomed his horse, before he took any steps to attend to his wounds. I think there is a good deal of sentiment expressed about the amount of pain docking causes. There are, of course, differences of opinion, but I think it will be allowed all round that there are cases in which the operation is useful at any rate.

Mr. CLAPP, in replying, said: With regard to Mr. Porch's statement Mr. Hunting took the words out of my mouth—I don't see the necessity of docking 'bus horses. As far as a rest being necessary, of course if a hot iron is used I don't see why the animal sbould not go to work at once. The hot iron, in my opinion, increases the pain greatly, and this is one reason why the public regard it so unfavourably. With regard to ligatures, with the horses I have docked I have always left the ligatures on some six or seven hours, and the dock has healed up splendidly. With regard to long tails causing mud-fever, what I said was that huntsmen say that long tails cause mud-fever, although I don't believe it myself. I quite agree with Mr. Hunting that if a non-professional man is skilled enough to dock he should be allowed to do so, although at the same time I am of opinion that it is because anybody may dock a horse that it is looked down upon so by the public.

Mr. DOWELL: I have much pleasure in proposing a vote of thanks to Mr. Clapp for the trouble he has been to in preparing and reading this paper. Seconded by Mr. SAMSON and carried unanimously.

The CHAIRMAN: It is our usual custom to bring the proceedings to a close at nine o'clock, but we will of course proceed with the next item on the agenda (the further discussion of Mr. Barrett's paper) if it is your will.

Colonel RAYMENT: The subject is one of such great interest and offers so much scope for discussion that it would be as well to adjourn the further discussion until the next meeting. Seconded by Mr. SLOCOCK.

As an amendment it was proposed by Mr. HUNTING and seconded by Mr. DOWELL that the discussion should terminate this night.

The amendment was put to the meeting and carried.

Mr. BARRETT having already replied to those who had previously spoken regarding his paper, and as nothing further was said on the subject, the matter dropped.

The proceedings terminated with a vote of thanks to the Chairman.

IRISH CENTRAL VETERINARY ASSOCIATION.

(*Continued from page* 442.)

Treatment.

We will now briefly discuss some of the modes of treatment with a view to eliciting your opinions as to the shortest and best way of producing the most satisfactory results. This part of pathology is, to my mind, in anything but a satisfactory condition. In the case of rupture of the tendons the parts are to be brought as nearly together as possible and fixed, the animal having previously been slung. I have found that it is advisable to first apply a bar shoe into which is let an iron splint and brought up as high as the elbow or point of the hock. Plaster bandages will be found very useful in giving support to the parts. After our patient has been five weeks in this position, I would remove the slings and with uniform extension and flexion try to produce pliability. Massage is to be recommended, as it undoubtedly materially assists not alone in strengthening the parts, but also in removing the exudate which is thrown out, and which has become redundant.

In all cases where rupture, that is to say complete disseverance of the tendons, has occurred, it is impossible to avoid a certain amount of contraction. In the case of rupture following disease of the bone, as it is sometimes seen in young foals, no good results are likely to ensue from any known treatment, and it is the most merciful, not to speak of economic advice, to have the animal destroyed.

There is a record of the rupture of the flexor tendons in three separate

limbs, but such cases are indeed rare. We all have seen in our post-mortem cases resulting from caries of the navicular bone producing extensive necrosis of the tendons, which would certainly have become ruptured upon very slight provocation.

Where we meet distension of the bursa resulting from injury to the sheath, the question arises as to advisability of puncturing. Personally, my first impressions after this operation gave me hope that it was the only remedy Success seemed to smile on my endeavours, but I found afterwards in a good many cases an extensive inflammation set in with high fever. In fact so alarming were the symptoms that the lives of the animals were endangered. Probably these symptoms were the result of imperfect asepsis, for since I have made it a point to sterilize all instruments and thoroughly cleanse the part, results have been more assuring.

I would here wish to bring before the notice of veterinarians an excellent sterilizer recently patented by a distinguished Dublin surgeon, George Burbidge White, Esq., F.R.C.S. It is very simply constructed and most portable, being made with an inner moveable chamber in which the instruments and dressings can be taken to the case, having been sterilized before leaving our pharmacy.

In a goodly number of cases I have evacuated the bursa only to find it filled again, in spite of the assistance of uniform pressure, which, by the way, is a matter of the utmost importance. Should there be an external wound antiseptics must be freely applied, and the parts protected in order to prevent contamination. Some recommend injecting a weak solution of iodine into the bursa. Care should be observed, as not infrequently it creates tremendous constitutional disturbances, although the after effects are undoubtedly good. Blistering, firing, and a variety of medicated unguentums are resorted to with an equal variety of results. An excellent plan, which has yielded very good results in acute cases of bursitis, is the application of a large pack of cotton wool, over which I place waterproof and then a good bandage. This I can recommend as having given satisfaction.

In the case of tendinitis our treatment will be best dictated by the position and extent of the injury. Of course much controversy arises as to whether cold or hot applications should be used. In my opinion the great pain of an extensive injury is always more effectually diminished by fomentations than by cold water. After the more acute symptoms have subsided, the wet pack will materially assist in the restoration of the parts to their normal condition. If, however, the injury is not too severe, long-continued cold applications, as by immersion or irrigation, will often give relief. Wet packs, either hot or cold, properly applied with waterproof, are very excellent and strongly to be recommended, but care must be bestowed, as both the moisture and equalised pressure favour reparative changes, and prevent excessive extravasation. A number of ointments are in daily use for the absorption of the inflammatory exudate, both mercury and iodine being much vaunted for their properties in this direction. It has often occurred to me that the old woman's cure of goose grease will give equally good results, as they all require a large amount of rubbing, and it is the massage which really effects the cure.

The liniment of iodine acts well both in the capacity of stimulant to the absorbents and counter-irritant, as does also a mixture of the liniment of iodine with soap liniment, which has the advantage of not staining the skin, and particularly in the case of white legs. In mild cases of tendinitis, Elliman's embrocation, or liniment terebinthinæ album, is satisfactory. Amongst the older veterinary practitioners arnica was their sheet anchor in all cases of sprains and bruises, and much benefit was ascribed to it. It has been relegated to obscurity, as it is now known that it was not the arnica which was potent, but the spirit which held it in solution.

A very popular nostrum amongst country folk is a hot watery solution of the althæa or marshmallow root for the reduction of inflammation and the prevention of suppuration; but I fear the hot water by itself gives equally good results, although in human medicine an ointment of this plant is sometimes recommended in the treatment of palmar psoriasis. Cowkeepers will not be content except you prescribe what is called "wash" for all fomentation purposes, and I admit it does remarkably well, but only in virtue of its warmth, and then it is very handy, and its heat is always very high, which is more than you can get if you prescribe water for the fomentations. Poulticing with linseed meal or mashed yellow turnips—in fact, with any agent which combines heat and moisture—is of material service in alleviating pain and reducing inflammation, and there are some cases of tendinitis which do remarkably well under this line of treatment. If in the neighbourhood of a brewery where "spent hops" can be procured, I prescribe them, and find them an excellent poultice; frequently, however, their practical application is difficult, as their weight makes them sag, and if what I might describe as "skilled labour" is wanting, such applications are inadmissible. Natural sheep's wool steeped in linseed oil—or, for that part, any other oil—which has been previously heated can be supported and kept in close juxtaposition by the aid of a bandage, and by its application all the advantages of poulticing are secured, with none of the untoward consequences. A very powerful anodyne and sedative is a mixture of the liniments of aconite and belladonna. After we have tried all our milder remedies, not infrequently will the applications of good sharp cantharadine blister give marvellous results in a few days—in fact, our case, which has hung in the balance for weeks, is able to resume work when the action of the blister has ceased. Like every other practitioner, I have fired those cases, and particularly where old thickenings exist, but most candidly confess that firing is not a success, and as to its strengthening weak tendons, I am a non-believer. It, however, suits our *clientèle*, gets us an extra fee, and has an innumerable host of witnesses, and is likely to remain in practice as good sound surgery.

In many cases contraction takes place after one attack of tendinitis, whilst in others it only follows as the result of frequent attacks, and it becomes a question of firing or blistering, and, if the case is very pronounced, tenotomy.

I have seen very satisfactory results in mild cases of contraction from the simple application of Archangel tar, well rubbed in from the knee down to the coronet, and the patient turned out to grass. This reads very gross, and smacks very largely of quackery. Well, I am bound to say that I scoffed when the idea was first mentioned to me. Upon trial of it, I was compelled to admit that it did a great amount of good, strengthening the parts, and keeping the animals sound for many months after, although they were of the light draught order. Doubtless, I will be met by some who will say it was the run on grass that performed the miracle, but no such thing, for I tried it both ways, and found the tar treatment give very much better results. Mr. McKenny, veterinary surgeon, of Dublin, has a very excellent liniment which he calls "absorbine," and which, in all bursal enlargements and chronic thickening, undoubtedly supplies a long felt want, reducing them in a very short time.

The effects of blistering and turning out on grass is too evanescent; the horses being put to work too soon tells the tale that the prescription was a failure. Another very good application is a blistering plaster, for it seems to give support to the part, whilst the blistering agent brings about absorption of the thickening.

In the treatment of the rheumatic form of tendinitis, or in any case of fever, the internal administration of salol will be found very efficacious, as it not alone reduces temperature very decidedly—a drop of 5 deg. being frequently noticed

after the administration of a couple of doses—but its analgesic properties are very pronounced.

I will not detail the operation of tenotomy, which would be unnecessary before my audience, but will briefly discuss its merits and demerits. Whilst it undoubtedly lengthens the tendons and restores the parts to something like the normal state, yet it is only in young horses, or on those for which my clients express a special liking, that I would perform the operation. The time is so long, six months, before there is any chance of genuine work being done, and probaby in the same length of time contraction has begun again. Our patients being, in the majority of cases, exclusively represented by so many pounds, and bereft of any association with the sentimental, they are not allowed by their owners to eat hay and oats which they do not earn, and although tenotomy improves them temporarily, yet it is not sufficiently lasting to satisfy. Again, probably, I have been the victim of circumstances; my *confrères* may be able to give a more flattering account of the operation, nay, I hope they will give me a hint as to how they arrive at the desideratum.

On the Continent some veterinarians only cut one of the tendons; but I think that if the operation is called for at all this would only be half the cure. In the treatment of any of these affections, as in the treatment of any diseased state, in the words of the song, "It is not the quantity of paint, but how you put it on."

It is impossible to lay down any course of treatment which cannot be questioned. We cannot say definitely, if the case is a slight strain do so and so; if such other structures are involved, employ another course. No, it is only by carefully weighing the pros and cons., examining the parts, noting the action and observing the conformation that we can employ the correct method of restoration.

The contraction of the tendons in thoroughbred foals is certainly difficult of explanation; some authorities ascribe it to abnormal position of the fœtus in utero; others "to a disproportion between the stallion and the mare, the bony framework being excessively developed when the stallion is too large." I have an idea it is some defect in assimilation which can take place both before and after birth, or to improper nutrition, much the same as rickets in the human race. The cases which I have seen were in foals of very aged matrons, and in the last one the mare's milk was so defective in quality that cows' milk with fresh eggs added had to be substituted. For four weeks this went on, and eventually the foal got apparently very strong, in fact refusing it; yet some two months after weaning double knuckling set in. I tried forcible extension with strong plaster bandaging, but the ultimate improvement did not satisfy the owner, and he determined to keep her for breeding purposes. I don't think it would be advisable to put such progeny into training at two or three years old, as they would most probably break down. I am strongly of the opinion that spavin and ringbone are in a great many instances not directly the result of heredity, neither sire nor dam having either unsoundness, but may arise from improper nutrition and defective assimilation, as is frequently the case in the offspring of old mares.

Gentlemen, I am afraid I have already trespassed too long on your time, and to very little purpose, but I am conscious that we are in the centre of practicability, and in the region where the *siné quâ non* of the practitioner is to produce soundness at any price, in order that his client may repair with all speed to "the moy," there to put the lame one in his pocket.

I am aware of the absolute genius in the Northern dealer, and I naturally presume he has got his knowledge from the veterinarian, and if only you will tell us all you know, and discuss the subject openly, I for one am sure will say my time has been well spent, and I will return to the capital of the country well repaid by the possession of this valuable panacea.

In writing these few remarks I have laboured under three distinct disadvantages—first, want of knowledge; second, want of inclination; and thirdly, want of literature on the subject; but I promise you that if I ever can be persuaded by anyone to undertake such a task, you may be sure the deluge has come again. Thanking you for your attention, and hoping for your sympathy and forbearance in your criticisms, I shall feel myself fortunate if I have created a discussion, whereby the latent powers of those present will be stimulated. Who can tell what good may accrue to us all, or where is the finality to our professional knowledge, for this region of pathology is chaotic.

Discussion.

The PRESIDENT: The thanks of the meeting are due to Mr. Watson for his able and very interesting paper. The subject chosen was one of most importance to veterinary practitioners, and as such I hope we will have a good discussion and a free interchange of views that will prove of advantage to us all. I have listened carefully to Mr. Watson's able paper, but unfortunately did not take notes, but I find myself so thoroughly in accordance with the major portion of his remarks that I do not intend to enter into any criticism of it. As regards sprains in different breeds of horses, I am quite with Mr. Watson's views. In my mixed practice I meet with many classes of horses, and the most difficult to treat—to keep them sound—is the heavy cart horse, particularly the Clydesdale and the Shire. The Irish heavy cart horse, although with probably a worse strain than the Clydesdale and proportionately greater loaded for his size, will remain after treatment practically sound; whereas his heavier brother, in very many cases, takes double the time, with results far from satisfactory. This is no doubt due to his greater weight and softness of his tendons. As regards treatment, I use the cold hose when the pain is not very great, and lotions of hydr. perchlor. spirit and water, and plumb. acet. If time is of no consequence I put on a mercurial charge, and over it an adhesive plaster. When the pain is excessive, I use the hot fomentations with anodyne lotions, and give in all cases a dose of physic. In a bad break down, I do not use the shoe with the iron splint, as from experience I found it unsatisfactory. I leave the animal free to lie down, and support the legs with bandaging, using various cooling lotions, repeated blistering, and plenty of rest. The greatest difficulty the veterinary surgeon has to deal with is the injudicious work after treatment, as in many cases the animal is asked to perform even more than ordinary work the first day.

Tenotomy, I must say, is an operation which I do not advise my clients to have done. With me it has not been a success, but possibly the subjects chosen were not suitable. In old cart horses, where the tendons have been shortening for years and the knuckling getting worse gradually, I perform tenotomy, aud then try stretching; in most cases what do you find? An almost, if not actually, anchylosed condition of the joint. Under such a condition, where does the benefit of tenotomy come in? The value of the horse, and the time to render the animal fit for work, are the points always to be borne in mind. In many cases the knacker's yard is the cheapest for your client.

Mr. HEDLEY observed that he was more in favour of hot moist treatment to cases of inflammation of tendons in the earlier stages than to the application of the cold water method, as pain yielded more readily to, and resolution appeared to be promoted by, moist heat than otherwise. He had not any experience in the use of spent hops, but the soothing influence of poppy-head decoction has generally been well marked. When fomenting with hot water the patient should not be embarrassed with heavy weights, such as thick, water-logged blankets, etc.; these should be substituted by using lambswool,

because it is not only light, but admits of the water quickly dripping away while the heat and steam is retained, hardly retarding the beneficial influence required. His experience confirmed the opinion expressed by the essayist and the President in relation to heavy horses in comparison with light and thoroughbred ones. The former were slow in recuperating, and more likely to recurrence of the accident when sent to resume work. Reparation did not appear to be as sound and lasting as in cases affecting the latter class of animals. He continued his observations by indicating that it was exceedingly difficult to draw any hard and fast line of treatment, and related some experience with regard to coal mine practice among horses "down shaft," where on such occasions and in dealing with cases under consideration were treated in the initial stages by the use of a cold lotion in which liq. plumbi and spt. vini meth. were the chief constituents. The after treatment depends on many considerations, among which the age of the patient, the class and value of animals, extent of injury, are necessary. Where practical he had found cold puncturing (sometimes called pin firing) followed by a cantharides and biniodide of mercury blister and rest had effected a cure. At times the ordinary charges in which a proportion of biniodide of mercury with a little corrosive sublimate had been thoroughly incorporated was exceedingly serviceable. He had taken part in tenotomy operations which had been successful, and had operated in the earlier days of his career without due consideration, and failure resulted. He concluded by expressing the pleasure he had in being present, congratulated the essayist, and hoping that this meeting was the forerunner of many successful meetings in Belfast.

Mr. WATSON, replying, said: I find myself in the very flattering position of having little or no replies to make, as my critics have been in entire accordance with my views. The firing question necessitates primarily time, and it is the time which is provocative of so much good. The moot point raised by our President as to the greater amount of good accruing from bud firing in contradiction to line firing can never, I am afraid, be irrevocably settled, as each system will, till the end of time, have its individual advocates. I do not doubt the efficacy of iodide of potassium in the treatment of bursal enlargements, but what I do say is, the price is prohibitive, the dosage being so large; and, in my opinion, the results do not warrant the expenditure. The glands which we want to stimulate, in the majority of these cases, are too far removed from the affected bursæ. As to massage, Mr. Hedley thinks that it would be too late to use it effectively after four or five weeks; well, if possible, I would prescribe it after the more acute inflammation had subsided; but, even after this space of time, if properly and continuously applied, great absorption will be the result.

A vote of thanks was proposed by Mr. FREEMAN, eulogising the essayist for producing at once an original, suggestive, and an especially practical paper for their delectation.

Mr. THOMPSON (Lurgan) seconded, and said that he would thoroughly concur with the expressions made use of by the proposer.

Mr. HEDLEY, in very warm terms, supported the vote of thanks, which was carried.

Mr WATSON: Mr. President and Gentlemen,—I feel that it was your kindness which occasioned such expressions and compliments upon my efforts before you this evening. In fact, when I had finished writing the paper the story was in my mind of the cynical old doctor who was called upon to make a few remarks on an essay which had been read by a young medical man, and which, in his eyes, was replete with erroneous doctrines. He said that nowadays men were writing papers that ought to be reading them. It is to be regretted that we have not more opportunities of communing with one another on subjects of a professional character, for it is undoubtedly refreshing

to have the opinion of practical men on matters of so much importance. After a meeting such as we have had I feel decidedly benefited by the exchange of ideas, and although at the time you may not be able to agree with the opinion expressed by others, yet it affords food for reflection, and I have often found, in my own case, that I have acquired valuable hints. I again have to thank you for your generous words, and should it be my lot, at any future time, to occupy a similar position, I will earnestly endeavour to more truly merit your encomiums.

The meeting was then brought to a close by a vote of thanks unanimously given to the Chairman.

CONTAGIOUS DISEASES ANIMALS ACT, 1864 AND 1899.

SUMMARY OF RETURNS OF OUTBREAKS for the four weeks ending June 10th, 1899.

ENGLAND AND WALES.

Pleuro-Pneumonia.	Swine Fever.	Glanders (including Farcy).	Rabies.	Anthrax.	Sheep-Scab (for month of May).
None	Outbreaks 307 Slaughtered 3,526	Outbreaks 39 Attacked 57	None.	Outbreaks 36 Attacked 63	Outbreaks 46

SCOTLAND.

None	Outbreaks 25 Slaughtered 653	Outbreaks 1 Attacked 3	None	Outbreaks 13 Attacked 21	Outbreaks 10

IRELAND.

None	Outbreaks 29 Slaughtered 165	None.	Dogs 9 Other animals 2 Destroyed 11	None	Outbreaks 16

WHAT IS THE COLOUR OF THE HORSE?—At Saturday's meeting of the Highland District Committee of Perth County Council, a claim was lodged on behalf of Mr. W. B. Thomson, Perth, for damage done to horse and van through the alleged defective state of the public road near Dunkeld. It was explained that part of the soil underneath a culvert had been washed away by a flood, the roadway being thus undermined. Some amusement was caused by the veterinary surgeon who examined the animal on behalf of the owner describing it as a black horse, the surgeon employed by the committee referring to it as brown; while a member was of the belief it was a chestnut, and asked if it was the same animal that had been examined by both men. The clerk was instructed to offer £10 in full of claim.—*Edinburgh Evening Dispatch*, June 5th.

Notes and News.

COUNTY COURT ACTION AT CARDIFF.—At Cardiff County Court on June 9th (before his Honour Judge Owen), J. Williams, contractor, sued E. P. Evans, veterinary surgeon, for £40, the value of a mare, which had died, it was alleged, owing to the negligence of the defendant. Mr. Bailhache (instructed by Mr. Lewis Morgan) appeared for the plaintiff, and Mr. Arthur Lewis (instructed by Mr. Joseph H. Jones) for the defendant. Plaintiff said he had been in possession of the mare for about eight years, but he could not tell her age. Mr. Arthur Lewis said that at the time of her unfortunate decease she was 20 years of age. Plaintiff believed that the mare was eight years old when he bought her.—His Honour: So you admit that she was 16 years old.—Plaintiff said that he gave £60 for the mare. In December of last year she suffered from a wound, and he sent to Mr. Evans for some slings, which were duly brought round. About nine weeks later he sent for Mr. Evans to come and attend the mare professionally. He examined her and prescribed, and with the instructions given he (plaintiff) complied. He recollected Mr. Evans sending some one to borrow the slings, but he refused to give them. Mr. Evans himself came later, and promised to return the slings in half an hour. He told Mr. Evans that if the horse fell down it would be all over. However, Mr. Evans took the slings, and plaintiff alleged that it was in consequence of their removal that the mare died. It was dead in the morning. Under cross-examination by Mr. Arthur Lewis plaintiff admitted that the mare had been suffering from the wound some time before he sent for the slings. He didn't send for them directly, as he thought she might get better. He was perfectly willing to Mr. Evans taking the slings away on the understanding that he would bring them back in half an hour. Plaintiff said he did not know when the slings were returned, as he went home. He didn't tell Mr. Evans that he need not return to put on the slings as they could do it themselves. An employee of plaintiff deposed that the slings were not returned until late in the evening. It must have been after 8.30, because he went to bed at the time, and had been to sleep when the slings were returned. The men who brought the slings said they would come in the morning to sling her up, as she was quiet then (in the evening.) Mr. Perry, veterinary surgeon, said that when he examined the mare he valued her at over £50. Under cross-examination by Mr. Arthur Lewis, witness said that it would not be improper to remove the slings if she could stand on three legs, and provided the animal was watched.—For the defence, Mr. Evans said he was called in to see the mare on December 21st, and found her suffering from blood poisoning. Plaintiff had not borrowed the slings before Sunday. It was he (defendant) who thought it necessary to sling her, which he did. He attended the mare daily from that time. When he borrowed the slings on the 28th, the mare was in a critical condition, but was well able to stand on three legs. Mr. Bailhache submitted that after such an admission the question was now only one of amount. Mr. Arthur Lewis, in the light of defendant's last answer, did not ask him any more questions, but called witnesses in order to prove that the value of the mare was not nearly so high as that named by the plaintiff. His Honour gave judgment for plaintiff for £35, and costs upon that amount.—*South Wales Echo*, June 10th, 1899.

RAILWAY HORSE-BOXES. — Masters of hounds, owners, breeders, and trainers, and others who are interested in high-class horses, are signing a memorial to the Board of Agriculture on the subject of the disinfection of railway horse-boxes. The memorialists say that there is, and has been for

many years past, a serious prevalence of influenza, septic pneumonia, and other infectious ailments in the various studs and stables in this country, and that great and increasing loss is every year incurred through the deaths of valuable horses and mares. Such diseases, they assert, are in a large measure spread through the neglect of the railway companies to cleanse and disinfect horse boxes after use. Finally it is pointed out that vast numbers of horses from America and elsewhere are brougnt every week to this country without any restriction as to their freedom from disease, and that these are conveyed in horse-boxes by the railway companies and distributed throughout the country, such horse-boxes being subsequently used without any sanitary precaution for the conveyance of other horses, no matter how valuable. The memorialists ask the Board to take the whole subject into consideration with a view to (a) Improving and rendering more effectual the prescribed method of disinfecting horse-boxes, whether by the use of formalin, or otherwise; and (b) Compelling the railway companies to scrupulously carry out the regulation at present existing, and any new regulation that may be made.—*Live Stock Journal*, June 16th.

EDINBURGH TOWN COUNCIL.—SANITARY AND MARKET INSPECTION—The Public Health Committee recommended that the chief sanitary and market inspector be appointed chief inspector under the Cattlesheds in Burghs (Scotland) Act, 1866, and that the appointments of Mr. A. R. Young, V.S., of the Sanitary Inspector's Department, under the said Act and under Section 27 of the City Act of 1891, be cancelled. Bailie Pollard and Mr. Menzies, in moving and seconding the report, explained that there was no intention to interfere with the status of Mr. Young, but the powers of the Act of 1866, under which Mr. Young had been appointed, had been superseded by the last Public Health Act, and they were accordingly desirous that the whole of the work should be conducted under the Public Health Act. There were at present two persons with equal powers doing the same work, and it was desirable that the Chief Sanitary Inspector should be head of his department in respect of all work undertaken by it. Mr. Williams held that there were here two separate provinces—the one the sanitary condition of the byres, which ought properly to come under Dr. Williamson, and the other the condition of the cattle, which was a matter for a veterinary surgeon. He had been told, although he could not vouch for it, that Dr. Williamson had declared that he knew more than any ten veterinary surgeons. Among several motions for remit were the following:—By Messrs. Waterston and Cubie—Remit to the Lord Provost's Committee to consider and report upon the obligations of the Magistrates and Council, as trustees of the late Professor Dick, upon the present state of the finances of the trust, the management of the college, and other cognate matters.

Communications, Books, Journals, etc., Received.

Veterinarian; Record; Bulletin of The John Hopkins Hospital; The Journal of Comparative Medicine and Veterinary Archives; The Scottish Medical and Surgical Journal; American Veterinary Review; The Public Health Journal; The Journal of the Jamaica Agricultural Society; Queensland Agricultural Gazette; Petersburg Veterinary Society's Journal; Revista Veterinaria (Vitoria); La Riforma Veterinaria (Naples); Recueil de Médecine Vétérinaire (Alfort); L'Echo Vétérinaire (Liège); Annales de Médecine Vétérinaire (Brussels); Berliner Thierärztliche Wochenschrift (Berlin); Deutsche Thierärtzliche Wochenschrift (Hannover and Karlsruhe); La Clinica Veterinaria (Milan); La Revista Veterinaria (Buenos Aires); Agricultural Journal (Cape Town); Bulletin de la Société des Sciences (Bucarest).